

TENNESSEE DEPARTMENT OF AGRICULTURE Water Resources Program

June 6, 2012

Ms. Erin O'Brien TDEC 401 Church Street L&C Annex, 6th Floor Nashville, Tennessee 37243

Dear Ms. O'Brien:

I am writing to inform you that the Tennessee Department of Agriculture (TDA) has reviewed the application and Comprehensive Nutrient Management Plan (CNMP) for CAFO permit for Mr. Michael Brown, Brown Family Farms, in Byrdstown, Tennessee (previous NPDES Permit NO. TNA000016).

This letter is to confirm that the TDA has reviewed and approved the CNMP. I have enclosed a copy of the Nutrient Management Plan Requirements form and the signed and dated Notice of Intent (NOI) form, Addendum to Nutrient Management Plan, Closure Plan, CNMP, and stamped Approval Stamp form for your review and final approval.

Sincerely,

Angela L. Warden

CAFO Specialist

: //enclosures

ec:// Mr. Michael Brown, owner, Brown Family Farms

Mr. John Donaldson, Technical Service Provider for Mr. Brown

Mr. Dwight Dickson, NRCS District Conservationist, Pickett County, TN



TENNESSEE DEPARTMENT OF AGRICULTURE

Water Resources Program

The following individual has submitted all required elements of an NMP/CNMP as required to obtain a CAFO permit. Their Nutrient Management Plan (or CNMP) has been reviewed and approved by this office.

Name of Owner/Operator: Michael Brown Operation Name: Brown Family Faci	
Address of Operation: 310 Hosy 127 By	rdstown, TN 38549
Phone Number: ((606) 688-1652	County: <u>Pickett</u>
Date application was initiated:	Date approval forwarded to TDEC:
RECEIVED	
MAY 01 2010	JUN U 6 2012
NMP/CNMP Approval Date: THE APPROVAL SHALL NOT BE CONSTRUED AS CREATING A PRESUMPTION OF CORRECT	Date approval received by TDEC
JUN 06 2012	
OPERATION OR AS WARRANTING THAT THE APPROVED FACILITIES WILL REACH THE DESIGNED GOALS	1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1
TDA Reviewer's Name: Angela Warde	
TDA Reviewer's Signature:	Date

D4 MENORI BrOWN Nutrient Munagement Plan Requirements have to



The following 9 items need to be submitted at the time the permit is applied for. Additional record-keeping items as outlined in the CAFO rules are also considered part of the nutrient management plan and must be kent on-site. More information on each item can be found in the

	_	ile (1200-4-514).
	1 .	Two maps: (1.) A map of your farm showing location of any animal barns/houses, compost bins, litter storage bins, manure lagoons/holding ponds, nearby roads, fields to which litter/manure will be applied and non-application buffer areas around any bodies of water (streams, creeks, rivers, ponds, wells, sinkholes, springs, wetlands, etc.). A hand-drawn map is acceptable and even preferred. (2.) A topographic map-of-the farm (1:24000 scale, showing 1-mile radius from farm) showing property lines.
Riva VISII 2	2 .	Nutrient budget – this is basically a balance sheet of all manure produced on the farm and all manure spread on the farm or removed from the farm. Application rates for all fields should be based on crop needs, realistic crop yield expectations, and actual manure analyses of nutrient content.
	3.	Soil test results for phosphorus and potassium for each application field. These must be taken at a minimum of every five years.
	□ / 4.	Results of manure analysis from within the past year. Annual manure testing is a requirement for all CAFOs. These results must be included with initial permit application if the farm is in operation. If the farm that is applying for the permit is new and not yet operating, then manure testing results need to be obtained once operation begins. At that point, the manure test results and revised application rates need to be submitted to TDA. Manure test results in subsequent years need to be kept as part of your record-keeping activities.
	∃ 5.	Results of the Phosphorus Index applied to each field that has a soil test P value of "High" or "Very High". In those situations, this tool will determine whether your application rates will be based on nitrogen or phosphorus.
	6 .	Statement regarding method of dead animal disposal .
	7.	Closure Plan to be implemented in the event animal production ceases on the site.
Th	ese la	st two items are only required for medium-size CAFOs that manage liquid manure.
	₽ 8.	Documentation of design of liquid waste handling system . This should include, but is not limited to volume for solids accumulation, design treatment volume, total design volume, the approximate number of days of storage capacity, pumping and routing of wastes, and any solid separation process. Ideally, this documentation would consist of the pertinent engineering drawings with accompanying descriptive narrative.
	란 9.	The construction, modification, repair, or installation of any portion of a CAFO liquid waste handling system (such as earthen holding pond, treatment lagoon, pit, sump or other earthen storage/containment structure) after April 13, 2006 must be preceded by a thorough subsurface investigation . This investigation will include a detailed soils investigation with special attention to the water table depth and seepage potential.
In .	additic	on to the items above, the following form(s) must accompany your application:
$\{a_{j}^{-j_{j}}, b_{j}\}_{j}$	☑ No	otice of Intent form must be submitted with all applications from Class II (Medium) CAFOs OR
,	₽ EF	PA Forms 1 and 2B must be submitted with all applications from Class I (Large) CAFOs.
	ΠA	Idendum to Nutrient Management Plan.



Tennessee Department of Environment and Conservation, Division of Water Pollution Control 401 Church Street, 6th Floor L & C Annex, Nashville, TN 37243 (615) 532-0625

CONCENTRATED ANIMAL FEEDING OPERATION (CAFO) STATE OPERATING PERMIT (SOP) APPLICATION

PERMITTEE IDENTIFICATION Official Contact (applicant): Mailing Address: State: Zip: St	OPERATION IDENTIFIE	CATION							<u> </u>
Operation Location/ 31C Hay 12.7 Physical Address: Oy 135 town TN 38544 Name and distance to nearest receiving water(s): 2775 H for this site, list those permit numbers: Animal Type: Poultry Swine Dairy Beef Other Number of Animals: 92000 Number of Barns: H Name of Integrator: Equity Green (check all that apply) Liquid Liquid, Closed System (i.e. covered tank, under barn pit, etc.) Attach the NMP NMP Attached Attach the closure plan Closure Plan Attached Attach a topographic map Map 1 PERMITTEE IDENTIFICATION Official Contact (applicant): M: Agal Brown Mailing Address: Optional Contact: Title or Position: Owner City: State: Zip: Corresp The Phone number(s): E-mail: APPLICATION CERTIFICATION AND SIGNATURE (must be signed in accordance with the requirements of Red Corresp I certify under penalty of law that this document and all attachments were prepared under my direction or supper in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information on the information submitted is, to the best of my knowledge and belief, true, accura complete. I am aware that there are significant penalties for submitting false information, including the possition: Name and title, print or type Date Date			Brown	Famil-	Farm	S		County:	richel
Hany other State or Federal Water/Wastewater Permits have been obtained for this site, list those permit numbers: Animal Type:	Operation Location/	10 Hwy	127						
Hany other State or Federal Water/Wastewater Permits have been obtained for this site, list those permit numbers: Animal Type:	1 hysical Address. 05	irdstou	in TN	38549				Longitude:	85 03
Animal Type: Poultry Swine Dairy Beef Other Number of Animals: 42,000 Number of Barns: 1 Name of Integrator: Equity Group Type of Animal Waste Management: Dairy Liquid Closed System (i.e. covered tank, under barn pit, etc.) Attach the NMP NMP Attached Attach the closure plan Closure Plan Attached Attach a topographic map Map of PERMITTEE IDENTIFICATION Official Contact (applicant): Owner Mailing Address: City: State: Zip: Corresp Mailing Address: Title or Position: Title or Position: Optional Contact: Title or Position: Address: City: State: Zip: Corresp E-mail: APPLICATION CERTIFICATION AND SIGNATURE (must be signed in accordance with the requirements of Rule (Value) (Corresp) in accordance with a system designed to assure that qualified personnel properly gather and evaluate the infor submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly resp for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurre complete. I am aware that there are significant penalties for submitting false information, including the possit fine and imprisonment for knowing violations. Name and title, print or type Date	Name and distance to nea	rest receiving	water(s): = Z,72	5 H. 1	rom S		Evante	************************************	**************************************
Number of Animals: \$\frac{92,000}{2000}\$ Number of Barns: \$\frac{4}{2000}\$ Name of Integrator: \$\frac{1}{2000}\$ \frac{1}{2000}\$ Type of Animal Waste Management: \$\frac{1}{2000}\$ Liquid Liquid, Closed System (i.e. covered tank, under barn pit, etc.)\$ Attach the NMP \$\sqrt{1000}\$ NMP Attached Attach the closure plan \$\sqrt{200}\$ Closure Plan Attached Attach a topographic map \$\sqrt{1000}\$ Map \$\frac{1}{2000}\$ PERMITTEE IDENTIFICATION Official Contact (applicant): \$\frac{1}{2000}\$ \frac{1}{2000}\$ \frac{1}{2000	If any other State or Fede	ral Water/Wast	ewater Permits ha	ve been obtaine	d for this sit	e, list those	permit number	ers:	
Type of Animal Waste Management: (check all that apply) Cliquid Liquid	Animal Type:	Poultry	Swine	☐ Dairy	Beef		Other		
Type of Animal Waste Management: (check all that apply) Cliquid Liquid	Number of Animals: 9	2,000	Number of I	Barns: 4		Name of	Integrator:	Equity	Group
PERMITTEE IDENTIFICATION Official Contact (applicant): Mailing Address: State: Zip: St		anagement:	☐ Liqui		m (i.e. cover	red tank, un	der barn pit, e	etc.)	,
Official Contact (applicant): M'cheal Brown Mailing Address: City: State: Zip: 310 Hwy 127 By State: 7w 35549 Phone number(s): (615)685-4128 (www.) 688-1652 Optional Contact: Title or Position: Address: City: State: Zip: □ Corresp City: State: Zip: □ Corresp Phone number(s): □ Invoice Phone number(s): □ Invoice Phone number(s): □ Invoice APPLICATION CERTIFICATION AND SIGNATURE (must be signed in accordance with the requirements of Rule 120-4-3-4-5) I certify under penalty of law that this document and all attachments were prepared under my direction or supe in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information. The information submitted is, to the best of my knowledge and belief, true, accuracy complete. I am aware that there are significant penalties for submitting false information, including the possition and imprisonment for knowing violations. Name and title; print or type Date	Attach the NMP 🔲 N	MP Attached	Attach the closu	re plan 🛛 C	losure Plan A	Attached	Attach a top	ographic map	⊠ Map A
Official Contact (applicant): M'cheal Brown Mailing Address: City: State: Zip: 310 Hwy 127 By State: 7w 35549 Phone number(s): (615)685-4128 (www.) 688-1652 Optional Contact: Title or Position: Address: City: State: Zip: □ Corresp City: State: Zip: □ Corresp Phone number(s): □ Invoice Phone number(s): □ Invoice Phone number(s): □ Invoice APPLICATION CERTIFICATION AND SIGNATURE (must be signed in accordance with the requirements of Rule 120-4-3-4-5) I certify under penalty of law that this document and all attachments were prepared under my direction or supe in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information. The information submitted is, to the best of my knowledge and belief, true, accuracy complete. I am aware that there are significant penalties for submitting false information, including the possition and imprisonment for knowing violations. Name and title; print or type Date	PERMITTEE IDENTIFIC	CATION							
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Mailing Address: City: State: Zip: Movice		Brown							
Phone number(s): Coto Get				-			•	ŧ	
Optional Contact: Address: City: State: Title or Position: City: State: Tip: Corresp Invoice Phone number(s): E-mail: APPLICATION CERTIFICATION AND SIGNATURE (must be signed in accordance with the requirements of Rule 1200-125-105) I certify under penalty of law that this document and all attachments were prepared under my direction or supe in accordance with a system designed to assure that qualified personnel properly gather and evaluate the infor submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly resp for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurace omplete. I am aware that there are significant penalties for submitting false information, including the possition and imprisonment for knowing violations. Name and title; print or type Date	310 Hwy	141		Dynd	stown		IN	78344	☐ Invoice
Optional Contact: Address: City: State: Zip: Invoice Phone number(s): E-mail: APPLICATION CERTIFICATION AND SIGNATURE (must be signed in accordance with the requirements of Rule 1200-14-5-05) I certify under penalty of law that this document and all attachments were prepared under my direction or supering accordance with a system designed to assure that qualified personnel properly gather and evaluate the information. Based on my inquiry of the person or persons who manage the system, or those persons directly respector gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate complete. I am aware that there are significant penalties for submitting false information, including the possible fine and imprisonment for knowing violations. Name and title; print or type Date				L-man.					and the state of t
Phone number(s): E-mail: APPLICATION CERTIFICATION AND SIGNATURE (must be signed in accordance with the requirements of Rule 1200-1400) I certify under penalty of law that this document and all attachments were prepared under my direction or supering accordance with a system designed to assure that qualified personnel properly gather and evaluate the information. Based on my inquiry of the person or persons who manage the system, or those persons directly resp for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate complete. I am aware that there are significant penalties for submitting false information, including the possible fine and imprisonment for knowing violations. Name and title; print or type Date			<u>k</u>	Title or Pos	ition:				
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Michael Brown Thekafter	Name and title; print or type	^			Signature	,	all	D	ate
	Micheel	Brown	<u> </u>		71 re	chaf	Brew		
Received Date Reviewer EFO T & E Aquatic Fauna Tracking No.	STATE USE ONLY Received Date			EFO					

MAD 2.3 2011 RDA 230

Addendum to Nutrient Management Plan:

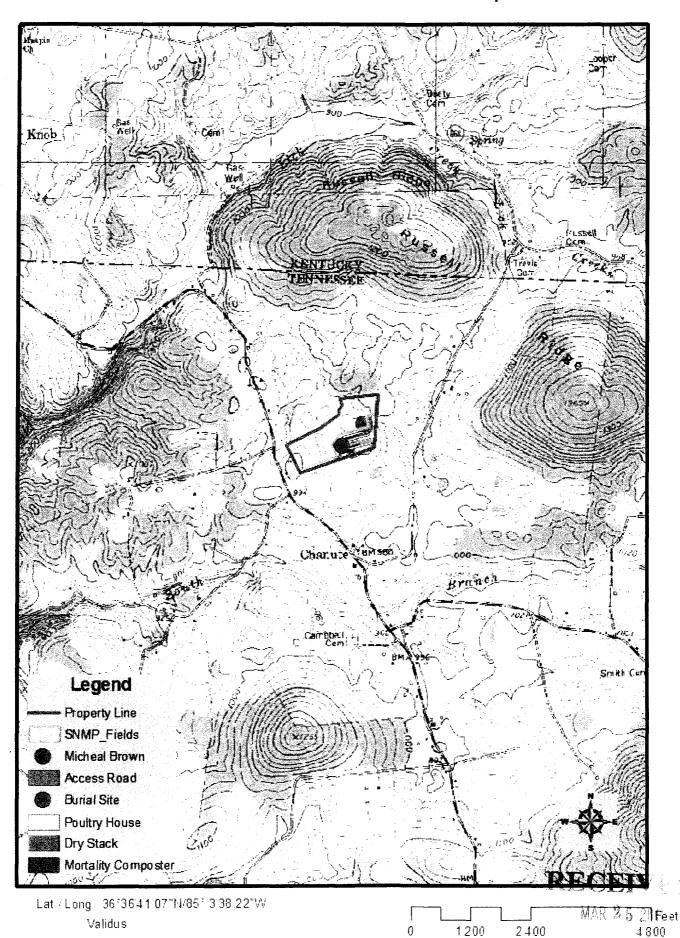
By approval of this plan, I affirm that I have read, understand, and will comply with the following stipulations from Tennessee's CAFO rule (1200-4-5-.14) that apply to my CAFO operation.

- 1. All clean water (including rainfall) is diverted, as appropriate, from the production area.
- 2. All animals in confinement are prevented from coming in direct contact with waters of the state.
- 3. All chemicals and other contaminants handled on-site are not disposed of in any manure, litter, process wastewater, or storm water storage or treatment system unless specifically designed to treat such chemicals and other contaminants.
- 4. All sampling of soil and manure/litter is conducted according to protocols developed by UT Extension.
- 5. All records outlined in 1200-4-5-.14(16) d-f will be maintained and available on-site.
- 6. Any confinement buildings, waste/wastewater handling or treatment systems, lagoons, holding ponds, and any other agricultural waste containment/treatment structures constructed after April 13, 2006 are or will be located in accordance with NRCS Conservation Practice Standard 313.
- 7. Drystacks of manure or stockpiles of litter are always kept covered under roof or tarps.
- 8. An *Annual Report* will be written for my operation and submitted between January 1 and February 15 of each year. It will include all information required by rule [1200-4-5-.14(16)g].

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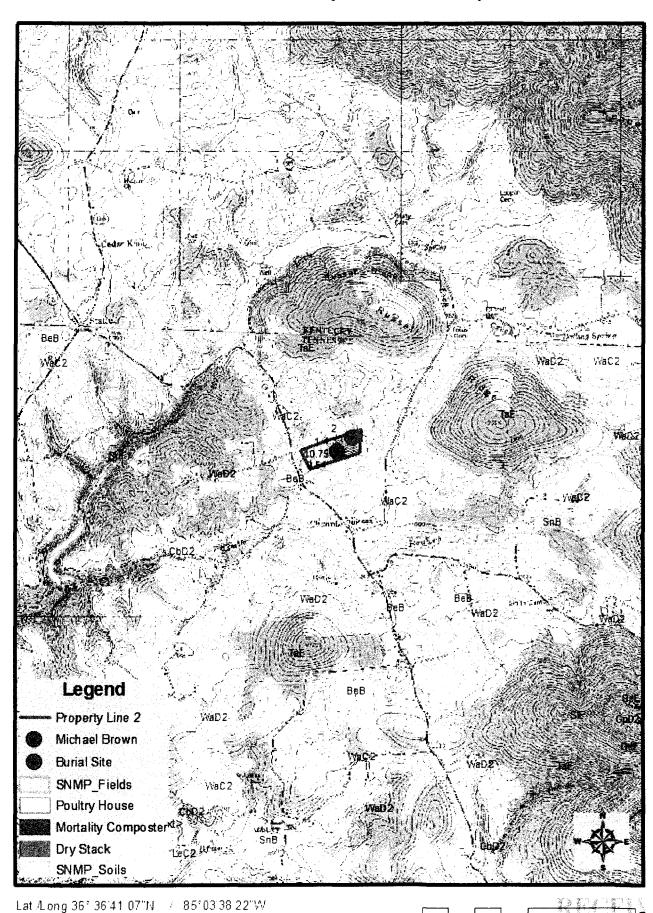
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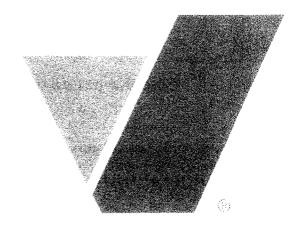
Comprehensive Nutrient Management Plan

For:

Michael Brown

Byrdstown, TN

June 2012 Prepared by:



Voldus

P.O. Box 14586 Des Moines, IA 50322 515-278-8002

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Warranty Disclaimer:

This CNMP was prepared using the USDA NRCS MMP software. Validus does not make, and hereby disclaims, all representations and warranties of every kind or nature, express or implied (by operation of law or otherwise), including fitness for a particular use or purpose, concerning the MMP Software and this CNMP prepared therewith or therefrom.

Comprehensive Nutrient Management Plan

The Comprehensive Nutrient Management Plan (CNMP) is an important part of the conservation management system (CMS) for your Animal Feeding Operation (AFO). This CNMP documents the planning decisions and operation and maintenance for the animal feeding operation. It includes background information and provides guidance, reference information and Web-based sites where up-to-date information can be obtained. Refer to the Producer Activity document for information about day-to-day management activities and recordkeeping. Both this document and the Producer Activity document shall remain in the possession of the producer/landowner.

		The production of	· · · · · · · · · · · · · · · · · · ·		
Farm cont	act information:	Michael Brown 310 Hwy 127 Byrdstown, TN 385	549		
Latitude/Lo	ongitude:	36° 36'41.07"N	85°03'38.2	2"W	
Plan Peri	od:	Apr 2010 - Mar 20	015		
CNMP Plan	n – Approval				
Signature:	Mark Mr. Bushan	Q .	Date:	6/5/12	
Name: Title:	Mark Berkland Conservation Planne	er Certification		s: TSP-03-2117	
Conservat	ion Planner				
and Produce	er Nutrient Manageme		ts for technic	emprehensive Nutrient Mal adequacy and that the mented.	
Signature:	Mank Mr. Bushan	R	Date:	6/5/12	
Name: Title:	Mark Berkland Conservation Planne	er Certification		s: TSP-03-2117	
CAP - CN	MP 102				
Signature:	Mark Mr. Bushan	\mathcal{L}	Date:	6/5/12	
Name: Title:	Mark Berkland Conservation Planne	er Certification	on Credential	s: TSP-03-2117	
Owner/Ope	<u>erator</u>				
and agree th responsible t	at the items/practices for keeping all the ne	s listed in each elemer	nt of the CNM ciated with the	been involved in the pla P are needed. I unders implementation of this described in the plan.	tand that I am
Signature:			_ Date:		
	ve Nutrient Managemer Validus Ventures, LLC	nt Plan (CNMP)			2

Addendum to Nutrient Management Plan:

By approval of this plan, I affirm that I have read, understand, and will comply with the following stipulations from Tennessee's CAFO rule (1200-4-5-.14) that apply to my CAFO operation.

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- 2. All animals in confinement are prevented from coming in direct contact with waters of the state.
- 3. All chemicals and other contaminants handled on-site are not disposed of in any manure, litter, process wastewater, or storm water storage or treatment system unless specifically designed to treat such chemicals and other contaminants.
- 4. All sampling of soil and manure/litter is conducted according to protocols developed by UT Extension.
- 5. All records outlined in 1200-4-5-.14(16) d-f will be maintained and available on-site.
- 6. Any confinement buildings, waste/wastewater handling or treatment systems, lagoons, holding ponds, and any other agricultural waste containment/treatment structures constructed after April 13, 2006 are or will be located in accordance with NRCS Conservation Practice Standard 313.
- 7. Drystacks of manure or stockpiles of litter are always kept covered under roof or tarps.
- 8. An *Annual Report* will be written for my operation and submitted between January 1 and February 15 of each year. It will include all information required by rule [1200-4-5-.14(16)g].

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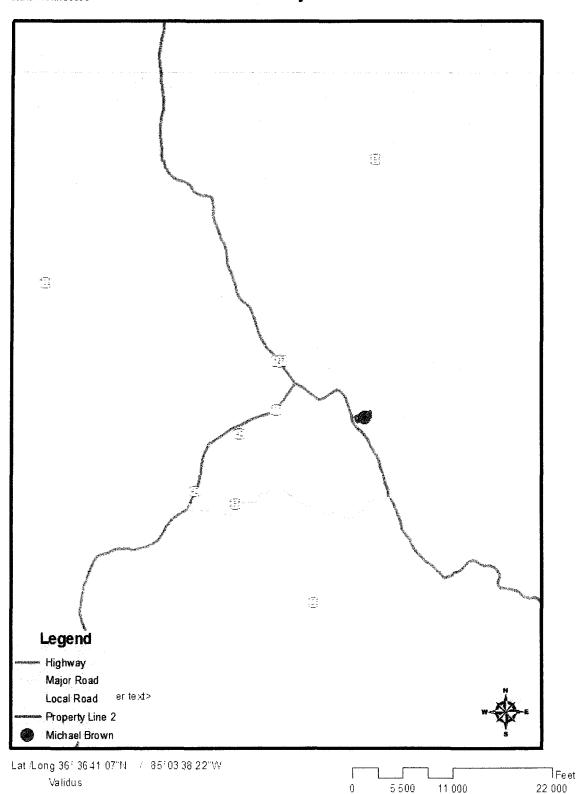
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Section 1. Background and Site Information

1.1. General Description of Operation

A Comprehensive Nutrient Management Plan (CNMP) is a conservation plan that is unique to animal feeding operations. This CNMP incorporates conservation practices and management activities which, when combined into a system, will help ensure that both agriculture production goals and natural resources protection goals are achieved. This CNMP addresses natural resource concerns dealing with soil erosion, manure, and organic byproducts, and their potential impacts on water quality, which may derive from an animal feeding operation (AFO). This CNMP is developed to assist an AFO owner/operator in meeting all applicable management activities and conservation practices which may be required to meet local, tribal, State, or Federal water quality goals, or regulations.



1.1. General Description of Operation

Michael Brown has a family owned contract poultry operation located in Pickett County Tennessee. The operation consists of four houses which contain 23,000 birds per house. Litter is applied to an adjacent alfalfa field with the balance of litter being exported off site for land application. Crustings and clean-out litter will be stored in the stacking sheds until they can be exported.

1.2. Sampling, Calibration and Other Statements

Manure sampling frequency

Manure samples will be taken in the fall prior to application.

Soil testing frequency

Soil test will be renewed in the every three years with a composite sample for each field and identified to match field identification used in this plan.

Equipment calibration method and frequency

Application equipment will be calibrated with documentation annually.

Manure applications

All manure will be surface applied in spring and fall at 1 year P rates.

Manure applications in this plan are based on MWPS 2004 data. Manure analysis will be required annually after implementation of this plan and will follow UT Ext. SOP for manure sampling.

Conservation Practices

Vegetation establishment is required around the buildings and storage structures to reduce soil erosion, and nutrient transport.

All disturbed areas, including slopes of pads, will be planted to permanent vegetation. If construction is during seasons not suited for planting warm or cool season grasses, temporary vegetation will be established until the recommended planting dates. Refer to Application and Maintenance of Conservation Practices and specifically NRCS practice standard 342, Critical Area Treatment, for guidance.

All conservation practices and management activities planned and implemented as part of this CNMP should meet NRCS technical standards. For those elements, for which NRCS does not maintain technical standards, the criteria established by Land Grant Universities, industry, or other technically qualified entities will be met.

Veterinary Waste Management

All veterinary waste will be either disposed of through an approved land fill and sharps containers or by the attending veterinarian.

Revision Trigger

This nutrient management plan shall be reviewed when the results of soil tests are received to insure manure application rates are appropriate. This plan must be re-certified at least every five year. Modifications of the CNMP will require re-certification whenever there are substantial changes made to the animal or crop operations. Substantial changes are defined as a change in crop sequence that would not allow allocation of the nutrients using Manure Management Planner (MMP) or equivalent



method, change in manure application area size greater than 15% or change in livestock numbers by greater than 10%.

CNMP Lifespan

This nutrient management plan shall be reviewed when the results of soil tests are received to insure manure application rates are appropriate. This plan must be re-certified at least every five years. Updates of this CNMP will require re-certification whenever there are substantial changes made to the animal or crop operations. This plan will be amended when required by the permit.

1.3. Resource Concerns

If checked, the indicated resource concerns have been identified and have been addressed in this plan.

Soil Quality Concerns

Soil Quality Concern	Fields
Ephemeral Gully Erosion	None
Gully Erosion	None
Sheet and Rill Erosion	None
Stream/Ditchbank Erosion	None

Water Quality Concerns

	Water Quality Concern	Fields
Α	Facility Wastewater Runoff	Production Site
В	Manure Runoff (Field Application)	Field 1
С	Nutrients in Surface Water	Field 1

Water Quality concerns will be addressed by the following practices:

Concern A---Two waste storage facilities are being used.

Concern B&C----Application setbacks (non-application) and proper application of nutrients will be implemented in fields 1&2.

Other Concerns Addressed

	Other Concern	Fields
AA	Acres Available for Manure Application	Field 1
BB	Maximize Nutrient Utilization	Field 1
CC	Minimize Nutrient Costs	Field 1
DD	Profitability	Field 1
EE	Regulations	Field 1 & Production Site

General clean up and grading of areas around facility will improve the overall aesthetics of the farm.

Following this plan will improve all other resource concerns

· 图象 电影 有数

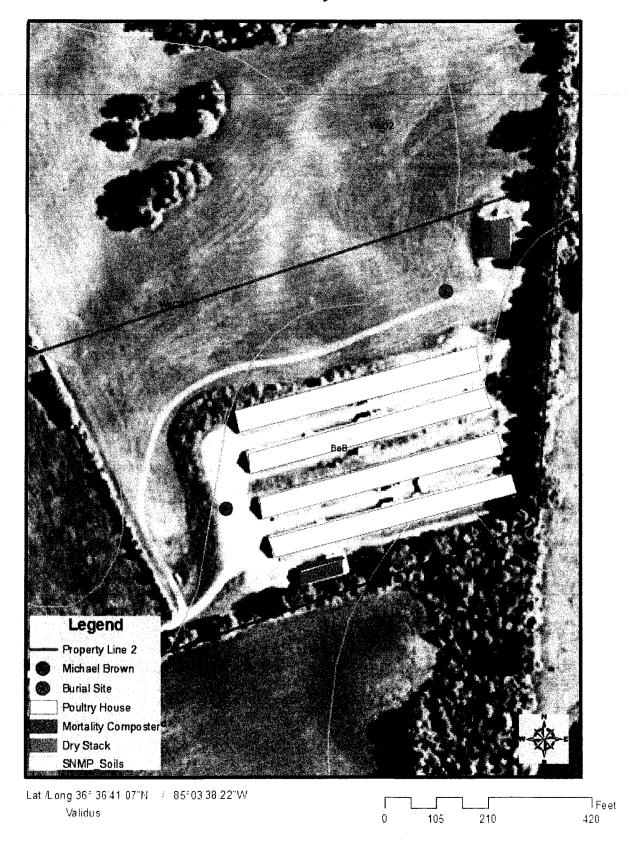
Section 2. Manure and Wastewater Handling and Storage

His element addresses the components and activities, existing and planned, associated with the production facility, manure storage, treatment structures and areas, and any area used to facilitate transfer of manure and wastewater. Dry stacks are used to store cake and cleanout that has been removed from the houses in-between times for field application and/or exporting. The dry stacks measure 40'X80' and 40'X100'.

2.1. Map(s) of Production Area

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2.2. Production Area Conservation Practices

2.3. Manure Storage

Storage ID	Type of Storage	Pumpable or Spreadable	Annual Manure Collected	Maximum Days of
		Capacity		Storage
House 1	In-house litter storage	250 Tons	160 Tons	570
House 2	In-house litter storage	250 Tons	160 Tons	570
House 3	In-house litter storage	250 Tons	160 Tons	570
House 4	In-house litter storage	250 Tons	160 Tons	570
Dry Stack 1	Poultry manure dry stack	260 Tons	0 Tons	
Dry Stack 2	Poultry manure dry stack	330 Tons	0 Tons	

2.4. Animal Inventory

Animal Group	Type or Production Phase	Number of Animals	Weight	Confinement Period	Manure Collected (%)	Storage Where Manure Will Be Stored
House 1	Broiler	23,000	3.2	Jan Early - Dec Late	100	House 1
House 2	Broiler	23,000	3.2	Jan Early - Dec Late	100	House 2
House 3	Broiler	23,000	3.2	Jan Early - Dec Early	100	House 3
House 4	Broiler	23,000		Jan Early - Dec Late	100	House 4

⁽¹⁾ Number of Animals is the average number of animals that are present in the production facility at any one time.

2.5. Normal Mortality Management

To decrease non-point source pollution of surface and ground water resources, reduce the impact of odors that result from improperly handled animal mortality, and decrease the likelihood of the spread of disease or other pathogens, approved handling and utilization methods shall be implemented in the handling of normal mortality losses. If on-farm storage or handling of animal mortality is done, NRCS Standard 316, Animal Mortality Facility, will be followed for proper management of dead animals.

Plan for Proper Management of Dead Animals

The following table describes how you plan to manage normal animal mortality in a manner that protects surface and ground water quality.

⁽²⁾ If Manure Collected is less than 100%, this indicates that the animals spend a portion of the day outside of the production facility or that the production facility is unoccupied one or more times during the confinement period.

The Michael Brown operation will use composting as the primary mortality disposal method. All mortalities will be collect upon discovery and composted.

For proper composting, correct proportions of carbon, nitrogen, moisture, and oxygen need to be present in the mix. Common carbon sources are sawdust or wheat straw. It is desirable because of its bulking ability, which allows entry of oxygen. Other carbon sources that could be used are peanut hulls, cottonseed hulls, sawdust, leaves, etc. If lab testing of the litter or experience indicates that the carbon/nitrogen ratio is adequate (20 - 35:1 ratio), then litter alone should be sufficient for composting mortality as long as desirable bulking ability is achieved and moisture is properly managed. Moisture management is critical and must be maintained between 40 and 55 percent (40% -does not leave your hand moist when squeezed, 55% - if more than two drops drip from your hand the material is too moist).

Recipe for composting broiler mortality

INGREDIENT	VOLUME	WEIGHTS	
Straw	1.0	0.10	
Carcasses	1.0	1.0	
Litter	1.5	1.2	
Water	0.5	0.75	

Compost layering procedure

- a. The first layer is one foot of litter.
- b. A 4-6 inch layer of carbon amendment (sawdust is preferred) is added according to the recipe
- c. A layer of carcasses is added. Carcasses shall be laid side-by-side and shall not be stacked on top of one another. Carcasses placed directly on dirt or concrete floors, or against bin walls will not compost properly.
- d. Water is added (uniform spray).
- e. Carcasses are covered with a 6-inch layer of litter.
- Next layer of carcasses begun with carbon amendment and above steps repeated.
- g. When composter is full, cap the 6-inch layer with four additional inches.

Maintain the moisture content at 40 to 55 percent during the composting process (40% - does not leave your hand moist when squeezed, 55% will allow about one drop of water to be released when squeezed, > 55% - if more than two drops drip from your hand the material is too moist, therefore, add sawdust or dry carbon source).

Temperature is the primary indicator to determine if the composting process is working properly. A minimum temperature of 130 °F shall be reached during the composting process. A temperature of 140 °F is optimum; however, temperatures may range up to 160 °F. If the minimum temperature is not reached, the resulting compost shall be incorporated immediately after land application or recomposted by turning and adding moisture as needed. Compost managed at the required temperatures will favor destruction of any pathogens and weed seeds.

Good carcass compost should heat up to the 140° range within a few days. Failure of the compost material to heat up properly normally results from two causes. First, the nitrogen source is inadequate (example wet or leached litter). A pound of commercial fertilizer spread over a carcass layer will usually solve this problem. Secondly, the compost fails when too much water has been added and the compost pile becomes anaerobic. An anaerobic compost bin is characterized by temperatures less than 120°, offensive odors, and black oozing compound flowing from the bottom of the compost bin. In this case a drier bulking / carbon amendment should be added to dry the mix. Then, the material should be remixed and composted.

It is possible, though unlikely, for the temperature to rise above the normal range and create conditions suitable for spontaneous combustion. If temperature rises above 170° F, the material should be removed from the bin and cooled, spread on the ground to a depth not to exceed six inches in an area away from buildings. Water should be

added only if flames occur. If temperature falls significantly during the composting period and odors develop, or if material does not reach operating temperature, investigate piles for moisture content, porosity, and thoroughness of mixing.

After this first stage process, the material should be turned into a second bin and allowed to go through a second heat process. For larger birds, especially turkeys, a third turning may be necessary for complete degradation of the birds. Typically, the process can be considered "done" within 21-28 days from the time the compost is filled for broilers. For turkeys, the process usually requires about 60 days. After the heat process, curing period of one to three months is usually required before the material is stable.

Compost may be land applied after the secondary or tertiary composting. If any animal parts are still in the mix, the material must be incorporated. If immediate application is not possible the material should be stored using the same requirements as that of stored litter in the Stacking Shed O&M statement.

Inspect compost structure at least twice annually when the structure is empty. Replace any broken or badly worn parts or hardware. Patch concrete floors and curbs as necessary to assure water tightness. Examine roof structures for structural integrity and leaks. Inspections shall be documented on the attached worksheet.

The primary and secondary composters and the litter storage area should be protected from outside sources of water such as rain or surface runoff.

In order to assure desired operation of the composting facility, daily records should be kept during the first several compost batches. This can be helpful in identifying certain problems that may occur.

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2.6. Planned Manure Exports off the Farm

Month- Year	Manure Source	Amount	Receiving Operation	Location
Mar 2011	Dry Stack 2	180 Tons	External Operation	
Apr 2011	Dry Stack 1	410 Tons	External Operation	
Jun 2011	Dry Stack 2	325 Tons	External Operation	
Mar 2012	Dry Stack 2	120 Tons	External Operation	
Apr 2012	Dry Stack 1	161 Tons	External Operation	
Oct 2012	Dry Stack 1	90 Tons	External Operation	
Oct 2012	Dry Stack 2	120 Tons	External Operation	
Mar 2013	Dry Stack 2	60 Tons	External Operation	
Apr 2013	Dry Stack 1	359 Tons	External Operation	
Jun 2013	Dry Stack 2	346 Tons	External Operation	
Mar 2014	Dry Stack 2	120 Tons	External Operation	
Apr 2014	Dry Stack 1	161 Tons	External Operation	
Oct 2014	Dry Stack 1	90 Tons	External Operation	
Oct 2014	Dry Stack 2	120 Tons	External Operation	
Mar 2015	Dry Stack 2	60 Tons	External Operation	

2.7. Planned Manure Imports onto the Farm

Month-	Manure's Animal Type Amount	Originating Operation	Location		
Year					
(None)					

2.8. Planned Internal Transfers of Manure

Month- Year	Manure Source	Amount	Manure Destination
Apr 2010	House 1	15 Tons	Dry Stack 1
Apr 2010	House 2	15 Tons	Dry Stack 1
Apr 2010	House 3	15 Tons	Dry Stack 2
Apr 2010	House 4	15 Tons	Dry Stack 2
Jun 2010	House 1	15 Tons	Dry Stack 1
Jun 2010	House 2	15 Tons	Dry Stack 1
Jun 2010	House 3	15 Tons	Dry Stack 2
Jun 2010	House 4	15 Tons	Dry Stack 2
Aug 2010	House 1	15 Tons	Dry Stack 1
Aug 2010	House 2	15 Tons	Dry Stack 1
Aug 2010	House 3	15 Tons	Dry Stack 2
Aug 2010	House 4	15 Tons	Dry Stack 2
Oct 2010	House 1	15 Tons	Dry Stack 1
Oct 2010	House 2	15 Tons	Dry Stack 1
Oct 2010	House 3	15 Tons	Dry Stack 2

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Month- Year	Manure Source	Amount	Manure Destination
Oct 2010	House 4	15 Tons	Dry Stack 2
Dec 2010	House 1	15 Tons	Dry Stack 1
Dec 2010	House 2	15 Tons	Dry Stack 1
Dec 2010	House 3	15 Tons	Dry Stack 2
Dec 2010	House 4	15 Tons	Dry Stack 2
Feb 2011	House 1	15 Tons	Dry Stack 1
Feb 2011	House 2		Dry Stack 1
Feb 2011	House 3		Dry Stack 2
Feb 2011	House 4	15 Tons	Dry Stack 2
Apr 2011	House 1	120 Tons	Dry Stack 1
Apr 2011	House 1	15 Tons	Dry Stack 1
Apr 2011	House 2	120 Tons	Dry Stack 1
Apr 2011	House 2		Dry Stack 1
Apr 2011	House 3		Dry Stack 2
Apr 2011	House 4	15 Tons	Dry Stack 2
Jun 2011	House 1	15 Tons	Dry Stack 1
Jun 2011	House 2	15 Tons	Dry Stack 1
Jun 2011	House 3	15 Tons	Dry Stack 2
Jun 2011	House 3		Dry Stack 2
Jun 2011	House 4	15 Tons	Dry Stack 2
Jun 2011	House 4		Dry Stack 2
Aug 2011	House 1		Dry Stack 1
Aug 2011	House 2	15 Tons	Dry Stack 1
Aug 2011	House 3	15 Tons	Dry Stack 2
Aug 2011	House 4	15 Tons	Dry Stack 2
Oct 2011	House 1		Dry Stack 1
Oct 2011	House 2	15 Tons	Dry Stack 1
Oct 2011	House 3	15 Tons	Dry Stack 2
Oct 2011	House 4	15 Tons	Dry Stack 2
Dec 2011	House 1	15 Tons	Dry Stack 1
Dec 2011	House 2	15 Tons	Dry Stack 1
Dec 2011	House 3	15 Tons	Dry Stack 2
Dec 2011	House 4	15 Tons	Dry Stack 2
Feb 2012	House 1	15 Tons	Dry Stack 1
Feb 2012	House 2		Dry Stack 1
Feb 2012	House 3		Dry Stack 2
Feb 2012	House 4		Dry Stack 2
Apr 2012	House 1		Dry Stack 1
Apr 2012	House 2		Dry Stack 1
Apr 2012	House 3		Dry Stack 2
Apr 2012	House 4		Dry Stack 2
Jun 2012	House 1		Dry Stack 1

Month- Year	Manure Source	Amount	Manure Destination
Jun 2012	House 2	15 Tons	Dry Stack 1
Jun 2012	House 3	15 Tons	Dry Stack 2
Jun 2012	House 4	15 Tons	Dry Stack 2
Aug 2012	House 1	15 Tons	Dry Stack 1
Aug 2012	House 2	15 Tons	Dry Stack 1
Aug 2012	House 3	15 Tons	Dry Stack 2
Aug 2012	House 4	15 Tons	Dry Stack 2
Oct 2012	House 1	15 Tons	Dry Stack 1
Oct 2012	House 2	15 Tons	Dry Stack 1
Oct 2012	House 3	15 Tons	Dry Stack 2
Oct 2012	House 4	15 Tons	Dry Stack 2
Dec 2012	House 1	·····	Dry Stack 1
Dec 2012	House 2	15 Tons	Dry Stack 1
Dec 2012	House 3	15 Tons	Dry Stack 2
Dec 2012	House 4	15 Tons	Dry Stack 2
Feb 2013	House 1	15 Tons	Dry Stack 1
Feb 2013	House 2		Dry Stack 1
Feb 2013	House 3	15 Tons	Dry Stack 2
Feb 2013	House 4		Dry Stack 2
Apr 2013	House 1		Dry Stack 1
Apr 2013	House 1		Dry Stack 1
Apr 2013	House 2		Dry Stack 1
Apr 2013	House 2	144 Tons	Dry Stack 1
Apr 2013	House 3	15 Tons	Dry Stack 2
Apr 2013	House 4	15 Tons	Dry Stack 2
Jun 2013	House 1		Dry Stack 1
Jun 2013	House 2	15 Tons	Dry Stack 1
Jun 2013	House 3	15 Tons	Dry Stack 2
Jun 2013	House 3	142 Tons	Dry Stack 2
Jun 2013	House 4	15 Tons	Dry Stack 2
Jun 2013	House 4	144 Tons	Dry Stack 2
Aug 2013	House 1	15 Tons	Dry Stack 1
Aug 2013	House 2	15 Tons	Dry Stack 1
Aug 2013	House 3	15 Tons	Dry Stack 2
Aug 2013	House 4	15 Tons	Dry Stack 2
Oct 2013	House 1		Dry Stack 1
Oct 2013	House 2	15 Tons	Dry Stack 1
Oct 2013	House 3	15 Tons	Dry Stack 2
Oct 2013	House 4	15 Tons	Dry Stack 2
Dec 2013	House 1		Dry Stack 1
Dec 2013	House 2		Dry Stack 1
Dec 2013	House 3		Dry Stack 2

Month- Year	Manure Source	Amount	Manure Destination
Dec 2013	House 4	15 Tons	Dry Stack 2
Feb 2014	House 1	15 Tons	Dry Stack 1
Feb 2014	House 2	15 Tons	Dry Stack 1
Feb 2014	House 3	15 Tons	Dry Stack 2
Feb 2014	House 4	15 Tons	Dry Stack 2
Apr 2014	House 1	15 Tons	Dry Stack 1
Apr 2014	House 2	15 Tons	Dry Stack 1
Apr 2014	House 3	15 Tons	Dry Stack 2
Apr 2014	House 4	15 Tons	Dry Stack 2
Jun 2014	House 1	15 Tons	Dry Stack 1
Jun 2014	House 2	15 Tons	Dry Stack 1
Jun 2014	House 3	15 Tons	Dry Stack 2
Jun 2014	House 4	15 Tons	Dry Stack 2
Aug 2014	House 1	15 Tons	Dry Stack 1
Aug 2014	House 2	15 Tons	Dry Stack 1
Aug 2014	House 3	15 Tons	Dry Stack 2
Aug 2014	House 4	15 Tons	Dry Stack 2
Oct 2014	House 1	15 Tons	Dry Stack 1
Oct 2014	House 2	15 Tons	Dry Stack 1
Oct 2014	House 3	15 Tons	Dry Stack 2
Oct 2014	House 4	15 Tons	Dry Stack 2
Dec 2014	House 1	15 Tons	Dry Stack 1
Dec 2014	House 2	15 Tons	Dry Stack 1
Dec 2014	House 3	15 Tons	Dry Stack 2
Dec 2014	House 4	15 Tons	Dry Stack 2
Feb 2015	House 1	15 Tons	Dry Stack 1
Feb 2015	House 2	15 Tons	Dry Stack 1
Feb 2015	House 3	15 Tons	Dry Stack 2
Feb 2015	House 4	15 Tons	Dry Stack 2

Section 3. Farmstead Safety and Security

3.1. Emergency Response Plan

In Case of an Emergency Storage Facility Spill, Leak or Failure

Implement the following first containment steps:

- a. Stop all other activities to address the spill.
- b. Stop the flow. For example, use skid loader or tractor with blade to contain or divert spill or leak.
- c. Call for help and excavator if needed.
- d. Complete the clean-up and repair the necessary components.
- e. Assess the extent of the emergency and request additional help if needed.

In Case of an Emergency Spill, Leak or Failure during Transport or Land Application

Implement the following first containment steps:

- a. Stop all other activities to address the spill and stop the flow.
- b. Call for help if needed.
- c. If the spill posed a hazard to local traffic, call for local traffic control assistance and clear the road and roadside of spilled material.
- d. Contain the spill or runoff from entering surface waters using straw bales, saw dust, soil or other appropriate materials.
- e. If flow is coming from a tile, plug the tile with a tile plug immediately.
- f. Assess the extent of the emergency and request additional help if needed.

Emergency Contacts

Department / Agency	Phone Number	
Fire	911	
Rescue services	911	
State veterinarian	615-781-5310	111111111111111111111111111111111111111
Sheriff or local police	911	

Nearest available excavation equipment/supplies for responding to emergency

Equipment Type	Contact Person	Phone Number	
End loader and scrapper	On site	On site	

Contacts to be made by the owner or operator within 24 hours

Organization	Phone Number	
EPA Emergency Spill Hotline	1-888-891-8332	
County Health Department	(931) 864-3178	
Other State Emergency Agency	931-823-1465	

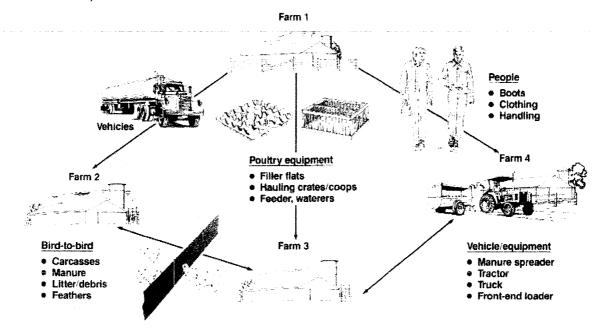
Be prepared to provide the following information:

- a. Your name and contact information.
- b. Farm location (driving directions) and other pertinent information.
- c. Description of emergency.
- d. Estimate of the amounts, area covered, and distance traveled.
- e. Whether manure has reached surface waters or major field drains.
- f. Whether there is any obvious damage: employee injury, fish kill, or property damage.
- g. Current status of containment efforts.

3.2. Biosecurity Measures

Biosecurity is critical to protecting livestock and poultry operations. Visitors must contact and check in with the producer before entering the operation or any production or storage facility.

How Diseases Spread



Steps to Take to Avoid Disease Spread - Poultry

To reduce the risk of introducing disease into a flock, maintain a biosecurity barrier (physical barrier, personal hygiene, and equipment sanitation) between wildlife, poultry facilities, other commercial avian facilities, and pet birds. Some examples of good biosecurity practices include:

- a. Permit only essential workers and vehicles on the premises.
- b. Provide clean clothing and a disinfection procedure for employees and visitors. Know your visitor's travel history.
- c. Clean and disinfect vehicles at the farm entrance.
- d. Avoid visiting other avian facilities.
- e. Do not keep pet birds.
- f. Protect the flock from exposure to wild birds.
- g. Control movement associated with the disposal of bird carcasses, litter, and manure.
- h. Quarantine new additions to the flock. Never allow people or material to move from the quarantined birds to the flock.
- Report signs of disease to your veterinarian.

3.3. Catastrophic Mortality Management

Refer to NRCS standards, or state guidance, regarding appropriate catastrophic animal mortality handling methods.

Plan for Catastrophic Animal Mortality Handling

The following table describes how you plan to manage catastrophic loss of animals in a manner that protects surface and ground water quality. You must follow all national, state and local laws, regulations and guidelines that protect soil, water, air, plants, animals and human health.

Burial will be used to dispose of catastrophic mortalities. Contact the state veterinarian's office and the local TDEC office.

BURIAL-- Dig a large pit or trench as located on the plan map. Insert dead animals daily, and cover them with one to two feet of soil. The pit should be graded so that it does not impound water. Runoff from the pit should flow into a grass filter. Note: When adequate drainage is not provided, these pits or trenches fill with water and carcasses may actually float to the surface. The water in the pit is very bacteria-laden and may be a hazard to both animal and human health. There is also high potential for ground water contamination from both bacteria and nutrients.

Burial trenches and pits must have at least a 2.0-foot separation between the bottom of the trench and groundwater. The pits should also have a berm to divert rainfall and runoff from the site. The soil should be able to infiltrate any rainfall that falls directly into the pit.

Vectors (dogs, rats, snakes, flies, etc.) are potential problems in a burial situation. Carcasses must be covered daily as to reduce vectors in and around the trench or pit.

When the burial pit is full, the site will be capped with a mound of soil so that precipitation is not allowed to collect in the closed pit. Also, the area will be grassed as to prevent erosion. The burial area will be monitored so that these conditions remain after settling of decomposing carcasses and capping material.

Important! In the event of catastrophic animal mortality, contact the following authority before beginning carcass disposal:

Authority name APHIS Contact name Charlie Hatcher Phone number 615-781-5310

3.4. Chemical Handling

If checked, the indicated measures will be taken to prevent chemicals and other contaminants from contaminating process waste water or storm water storage and treatment systems.

	Measure
X	All chemicals are stored in proper containers. Expired chemicals and empty containers are properly disposed of in accordance with state and federal regulations. Pesticides and associated refuse are disposed of in accordance with the FIFRA label.
X	Chemical storage areas are self-contained with no drains or other pathways that will allow spilled chemicals to exit the storage area.
х	Chemical storage areas are covered to prevent chemical contact with rain or snow.
х	Emergency procedures and equipment are in place to contain and clean up chemical spills.
Х	Chemical handling and equipment wash areas are designed and constructed to prevent contamination of surface waters and waste water and storm water storage and treatment systems.
	All chemicals are custom applied and no chemicals are stored at the operation. Equipment wash areas are designed and constructed to prevent contamination of surface waters and waste water and storm water storage and treatment systems.

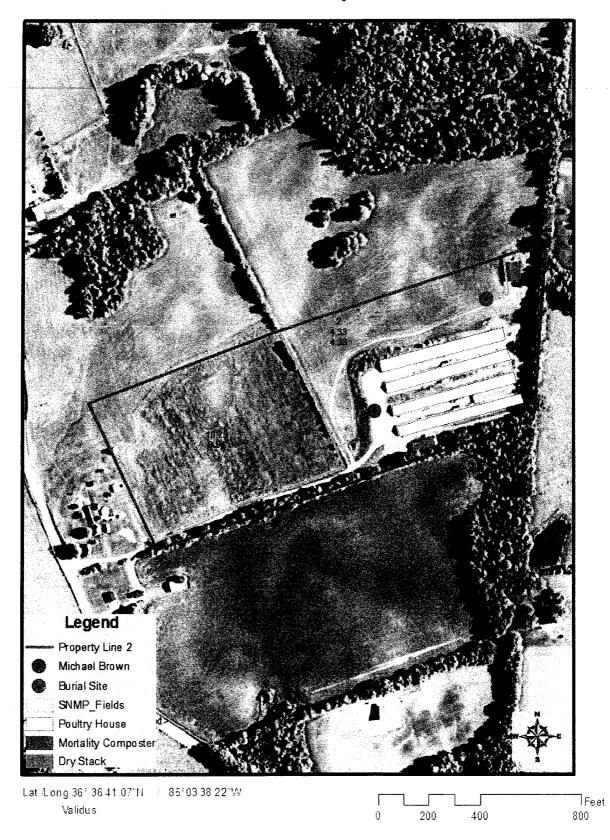
Section 4. Land Treatment

This element addresses evaluation and implementation of appropriate conservation practices on sites proposed for land application of manure and organic byproducts from an Animal Feeding Operation. On fields where manure and organic byproducts are applied as beneficial nutrients, it is essential that runoff and soil erosion be minimized, to allow for plant uptake of these nutrients.

4.1. Map(s) of Fields and Conservation Practices

Field 1 is hayland





4.2. Land Treatment Conservation Practices

Forage Harvest Management (511)

Cutting and removal of forages from the field will be managed to produce the desired quality and quantity, to promote vigorous regrowth, and to maintain stand life. Maintain a minimum of 3-inch stubble height.

Tract/Field	Planned amount (Ac)	Month	Year	Amount Applied	Date
1	12.5	05	2010		
2	11.3	05	2010		
Total	23.8				

PASTURE AND HAYLAND PLANTING (512)

Fertilize according to current soil test requirements for establishment and control weeds by mowing or use of approved herbicides. Prepare a clean, firm, weed free seedbed for planting.

Tract/Field	Planned amount (Ac)	Month	Year	Amount Applied	Date
2	11.3	1		11.3	Prior
Total	11.3			11.3	

NUTRIENT MANAGEMENT (590)

To maintain or improve the chemical and/or biological condition of the soil, manage the amount, form, placement, and timing of plant nutrients. Fertilizer and animal waste application, soil testing, manure analysis, and record keeping will be carried out as specified by the Nutrient Management Section of this Comprehensive Nutrient Management Plan. All nutrients will be applied according to a current soils test. If animal waste is to be applied, a soil test will be required every year. Apply nutrients based on current (no older than 3 years) soil test results.

Tract/Field	Planned	Month	Year	Amount	Date
	amount (Ac)			Applied	
1	12.5	05	2010		
2	11.3	05	2010		
Total	23.8				

Waste Utilization (633)

The enclosed "Nutrient Management Plan" in Section 4 outlines the proper manure application rates, timing, and methods of application to provide needed crop nutrients and to minimize the transport of nutrients to ground and surface water. Follow setbacks (non-manure) applications areas outlined on maps.

Tract/Field	Planned amount (Ac)	Month	Year	Amount Applied	Date
1	12.5	05	2010		
2	11.3	05	2010		
Total	23.8				

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Section 5. Soil and Risk Assessment Analysis

5.1. Soil Information

Field	Map Unit	Soil Component Name	Surface Texture	Slope Range (%)	OM Range (%)	Bedrock Depth (in.)
2	WaC2	Waynesboro	L	5-12%	0.5-2%	
1	WaC2	Waynesboro	L	5-12%	0.5-2%	



Map Unit Description (Brief, Generated)

Fentress and Pickett Counties Area, Tennessee

[Minor map unit components are excluded from this report]

Map unit: WaC2 - Waynesboro-Etowah complex, 5 to 12 percent slopes, eroded

Component: Etowah (40%)

The Etowah component makes up 40 percent of the map unit. Slopes are 5 to 12 percent. This component is on stream terraces on plateaus. The parent material consists of loamy alluvium and/or colluvium derived from limestone, sandstone, and shale. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is well drained. Water movement in the most restrictive layer is moderately high. Available water to a depth of 60 inches is high. Shrink-swell potential is low. This soil is not flooded. It is not ponded. There is no zone of water saturation within a depth of 72 inches. Organic matter content in the surface norizon is about 2 percent. Nonirrigated land capability classification is 3e. This soil does not meet hydric criteria.

Component: Waynesboro (40%)

The Waynesporo component makes up 40 percent of the map unit. Slopes are 5 to 12 percent. This component is on stream terraces on plateaus. The parent material consists of clayey alluvium derived from interpedded sedimentary rock. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is well drained. Water movement in the most restrictive layer is moderately high. Available water to a depth of 60 inches is high. Sinfink-swell potential is low. This soil is not flooded, it is not ponded. There is no zone of water saturation within a depth of 72 inches. Organic matter content in the surface nonzon is about 2 percent. Noniringated land capability classification is 3e. This soil does not meet hydric criteria.

5.2. Predicted Soil Erosion

Average water, wind, irrigation, gully and ephemeral soil loss

	Field Predominant Soil Type	Slope (%)	Conserva- tion Plan Soil Loss (Ton/A/Yr)	Wind (Ton/A/Yr)	Irrigation (Ton/A/Yr)	Gully (Ton/A/Yr)	Ephemeral (Ton/A/Yr)	T Factor (Ton/A/Yr)
2	WaC2 (Waynesboro L)	8.5	3.8					5
1	WaC2 (Waynesboro L)	8.5	0.4				:	5

Crop period water soil loss

Field	Crop Year	Primary Crop	Starting Date (mm/dd/yyyy)	Ending Date (mm/dd/yyyy)	Crop Period Soil Loss (Ton/Acre)
2	2010	Alfalfa maintenance	9/26/2009	9/25/2010	6.2
	2011	Alfalfa maintenance	9/26/2010	9/25/2011	4.1
	2012	Alfalfa maintenance	9/26/2011	9/25/2012	2.6
	2013	Alfalfa maintenance	9/26/2012	9/25/2013	3.2
	2014	Alfalfa maintenance	9/26/2013	9/25/2014	3.5
1	2010	Fescue hay maint	9/11/2009	9/10/2010	0.5
	2011	Fescue hay maint	9/11/2010	9/10/2011	0.4
	2012	Fescue hay maint	9/11/2011	9/10/2012	0.4
	2013	Fescue hay maint	9/11/2012	9/10/2013	0.3
	2014	Fescue hay maint	9/11/2013	9/10/2014	0.3

5.3. Nitrogen and Phosphorus Risk Analysis

Risk Assessment for Potential Phosphorous Transport from Fields

The Phosphorus Index is a field-specific assessment tool used to provide a relative value of the field for potential phosphorus transport from the fields. Based on the soil test phosphorus level and the P Index value, nutrients should be land applied on a nitrogen-based, with an estimated 2P removal in harvested biomass, or P removal, or no P application. Any phosphorus application option, including a single application (banking), shall not exceed the recommended nitrogen application rate during the year of application, or not exceed the estimated nitrogen removal n harvested biomass.

Tennessee Phosphorus Index

Field	Crop Year	Site and Transport Factor	Mgmt. and Source Factor	P Index w/o P Apps	P Index w/ P Apps	P Loss Risk
2	2010	13	4	52	52	Low
2	2011	13	42	52	546	Very High
2	2012	13	22	52	286	High
2	2013	13	22	52	286	High
2	2014	13	22	52	286	High
1	2010	13	4	52	52	Low
1	2011	13	21	52	273	High
1	2012	13	20	52	260	High
1	2013	13	20	52	260	High
1	2014	13	20	52	260	High

5.4. Additional Field Data Required by Risk Assessment Procedure

Field	Distance to Water (Feet)	Slope Length (Feet)	Buffer Width (Feet)	Tillage/Cover-Type
2	1,200	150	None	Pasture/Hay
1	1,200	150	None	Pasture/Hay

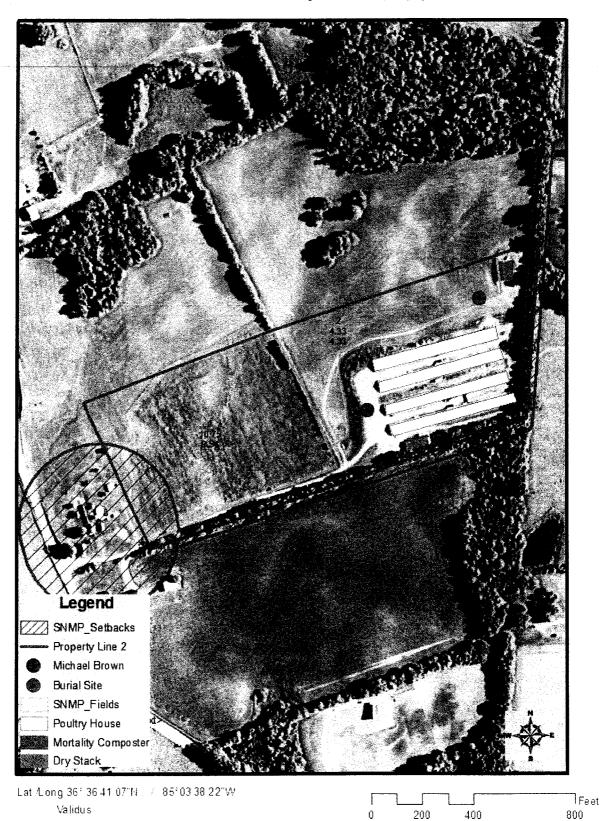
Section 6. Nutrient Management

The goal of this section is to develop a nutrient budget for nitrogen, phosphorus, and potassium that includes all nutrient sources. From this nutrient budget, projections will be made concerning the sustainability of the plan for the entire crop sequence. In most cases, the nutrient budget is accurate for the first year only. If nutrients from sources not included in this plan are used in the first year, the nutrient budget will be revised to account for those inputs. In subsequent years considered in this plan, a nutrient budget will be developed using current soil analysis data; current manure analysis data; the actual crops to be used and their projected yields and nutrient needs and will account for nutrients from all sources. Guidance in developing a nutrient budget may be obtained from your NRCS Field Office or your University of Tennessee Cooperative Extension Service Agent. Land application procedures must be planned and implemented in a way that minimizes potential adverse impacts to the environment and public health.

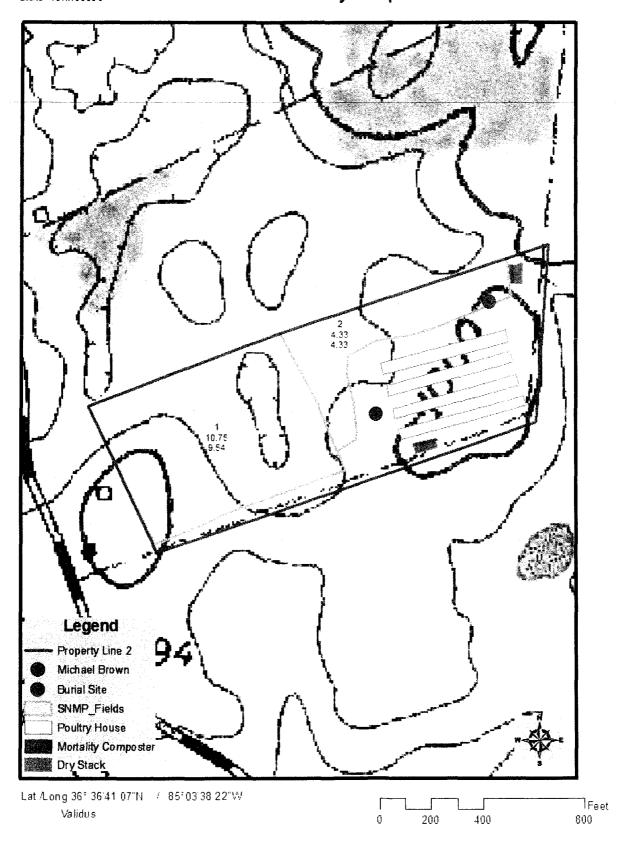
If land is included in the future for application that is not under the ownership/control of the producer, appropriate agreements will be obtained.

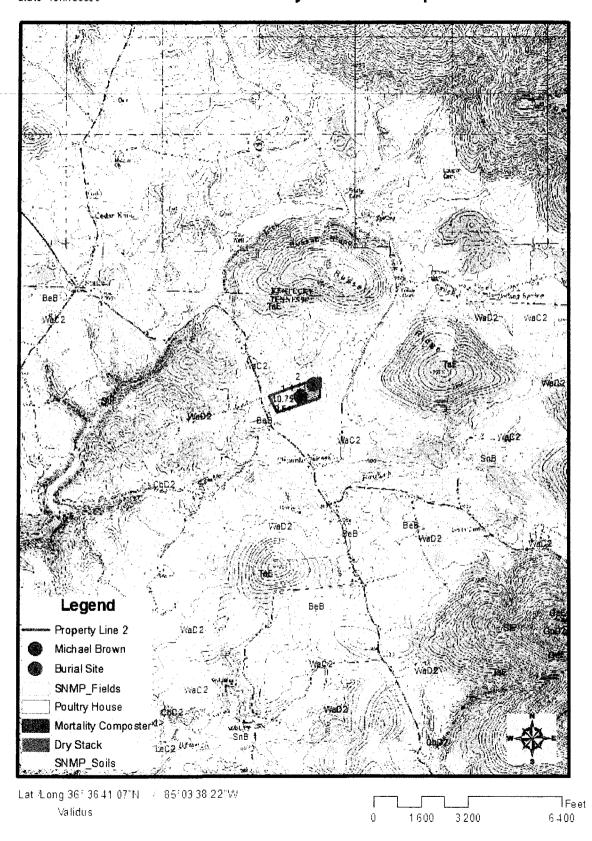
6.1. Field Information

	Field ID	Sub- field ID	Total Acres	Spread- able Acres	County	Predominant Soil Type	Slope (%)	Watershed Code	FSA Farm	FSA Tract	FSA Field
2	>		4.3	4.3	Pickett	WaC2 (Waynesboro L)					
1			10.8	9.5	Pickett	WaC2 (Waynesboro L)			:		



Brown Poultry Topo





6.2. Manure Application Setback Distances

Setback Requirements: Class II CAFO

Feature	Setback Criteria	Setback Distance (Feet)
Streams	Applied upgradient, no permanent or insufficient vegetated setback	100
Streams	New operation, near high quality stream	60
Surface waters	Applied upgradient, no permanent or insufficient vegetated setback	100
Open tile line inlet structures	Applied upgradient, no permanent or insufficient vegetated setback	100
Sinkholes	Applied upgradient, no permanent or insufficient vegetated setback	100
Agricultural well heads	Applied upgradient, no permanent or insufficient vegetated setback	100
Other conduits to surface waters	Applied upgradient, no permanent or insufficient vegetated setback	100
Potable well, public or private	Application upgradient of feature	300
Potable well, public or private	Application down-gradient of feature	150

Source: TN DEQ Rule 1200-4-5-.14(17)(d) (http://www.state.tn.us/sos/rules/1200/1200-04/1200-04-05.pdf)

Setback Requirements: NRCS Standard

Feature	Setback Criteria	Setback Distance (Feet)
Well	Application upgradient of feature	300
Well	Application down-gradient of feature	150
Waterbody	Predominant slope >8%	100
Waterbody	Poor vegetation	100
Public road	All applications	50
Dwelling (other than producer)	All applications	300
Public use area	All applications	300
Property line	Application upgradient of feature	30

Source: Nutrient Management Standard 590 (http://efotg.nrcs.usda.gov/references/public/TN/Nutrient_Management_(590)_Standard.doc)

6.3. Soil Test Data

Field	Test OM Year (%)	P Test Used	P	K	Mg	Ca	Units	Soil pH	Buffer pH	CEC (meq/ 100g)
2	2009	Mehlich-3 ICP	189	609	255	3,018	lbs/a	6.4	6.9	13.0
1	2009	Mehlich-3 ICP	189	609	255	3,018	lbs/a	6.4	6.9	13.0

6.4. Manure Nutrient Analyses

Manure Source	Dry Matter (%)	Total N	NH4-N	Total P₂O₅	Total K₂O	Avail. P ₂ O ₅	Avail. K₂O	Units	Analysis Source and Date
House 1		72.2		47.6	51.5	47.6	51.5	Lb/Ton	Arkansas M00674
House 2		72.2		47.6	51.5	47.6	51.5	Lb/Ton	Arkansas M00674
House 3		72.2		47.6	51.5	47.6	51.5	Lb/Ton	Arkansas M00674
House 4		72.2		47.6	51.5	47.6	51.5	Lb/Ton	Arkansas M00674
Dry Stack 1		72.2		47.6	51.5	47.6	51.5	Lb/Ton	Arkansas M00674
Dry Stack 2		72.2		47.6	51.5	47.6	51.5	Lb/Ton	Arkansas M00674

⁽¹⁾ Entered analysis may be the average of several individual analyses.

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6.5. Planned Crops and Fertilizer Recommendations

	Field	Crop Year	Planned Crop	Yield Goal (per Acre)	N Rec (Lbs/A)	P₂O₅ Rec (Lbs/A)		N Removed (Lbs/A)	P ₂ O ₅ Removed (Lbs/A)		Custom Fert. Rec. Source
2		2010	Alfalfa maintenance	5.0 Ton	0	0	0	280	75	300	
2		2011	Alfalfa maintenance	5.0 Ton	0	0	0	280	75	300	
2		2012	Alfalfa maintenance	5.0 Ton	0	0	0	280	75	300	
2		2013	Alfalfa maintenance	5.0 Ton	0	0	0	280	75	300	
2		2014	Alfalfa maintenance	5.0 Ton	0	0	0	280	75	300	
1		2010	Fescue hay maint	3.0 Ton	105	0	0	114	54	156	
1		2011	Fescue hay maint	3.0 Ton	105	0	0	114	54	156	
1		2012	Fescue hay maint	3.0 Ton	105	0	0	114	54	156	

⁽²⁾ Tennessee assumes that 100% of manure phosphorus and 100% of manure potassium is crop available. First-year per-acre nitrogen availability for individual manure applications is given in the Planned Nutrient Applications table. For more information about nitrogen availability in Tennessee, see "Manure Application Management," Tables 3 and 4, Tennessee Extension, PB1510, 2/94 (http://wastemgmt.ag.utk.edu/Pubs/PB1510.pdf).

Field	Crop	Planned Crop	Yield	N	P ₂ O ₅	K₂O	N	P ₂ O ₅	K₂O	Custom Fert. Rec. Source
	Year		Goal	Rec	Rec	Rec	Removed	Removed	Removed	
			(per Acre)	(Lbs/A)	(Lbs/A)	(Lbs/A)	(Lbs/A)	_(Lbs/A)	(Lbs/A)	
1	2013	Fescue hay maint	3.0 Ton	105	0	0	114	54	156	
1	2014	Fescue hay maint	3.0 Ton	105	0	0	114	54	156	

^{*} Unharvested cover crop or first crop in double-crop system.

a Custom fertilizer recommendation.

All crop removal and fertilizer recommendations data based UT PSS 185

6.6. Manure Application Planning Calendar - April 2010 through March 2011

Field	Total Acres	Spread. Acres	Predominant Soil Type	Primary 2010 Crop (Prev. Primary Crop)	Apr '10	May Jun '10 '10	Aug '10				
2	4.3	4.3	12%)	Alfalfa maintenance (Alfalfa maintenance)							
1	10.8	9.5	Waynesboro L (WaC2 5- 12%)	Fescue hay maint (Fescue hay maint)							į
Total	15.1	13.8									

Manure Application Planning Calendar – April 2011 through March 2012

Field	Total Acres	Spread. Acres		Primary 2011 Crop (Prev. Primary Crop)	'11	May '11	Jun '11	Jul '11	Aug '11	Sep '11	Oct '11	Nov '11	Dec '11	Jan '12	Feb '12	
2	4.3	4.3	Waynesboro L (WaC2 5- 12%)	Alfalfa maintenance (Alfalfa maintenance)												
1	10.8		,	Fescue hay maint (Fescue hay maint)												
Total	15.1	13.8			5.7											

Manure Application Planning Calendar – April 2012 through March 2013

Field	Total Acres	Spread. Acres	Predominant Soil Type	Primary 2012 Crop (Prev. Primary Crop)	Apr '12	Jun '12			Dec '12		
2	4.3	4.3	12%)	Alfalfa maintenance (Alfalfa maintenance)							
1	10.8	9.5	Waynesboro L (WaC2 5- 12%)	Fescue hay maint (Fescue hay maint)							
Total	15.1	13.8			2.7						

Manure Application Planning Calendar – April 2013 through March 2014

Field	Total Acres	Spread. Acres	Predominant Soil Type	Primary 2013 Crop (Prev. Primary Crop)		Jun '13	Jul '13	Aug '13	Sep '13	Oct '13	Nov '13	Dec '13	Jan '14	Feb '14	Mar '14
2	4.3	4.3	12%)	Alfalfa maintenance (Alfalfa maintenance)											
1	10.8	9.5	Waynesboro L (WaC2 5- 12%)	Fescue hay maint (Fescue hay maint)											
Total	15.1	13.8			2.7										

Manure Application Planning Calendar - April 2014 through March 2015

Field	Total Acres	Spread. Acres	Predominant Soil Type	Primary 2014 Crop (Prev. Primary Crop)		Jun '14	Aug '14	Oct '14	Dec '14	Jan '15	1000	Mar '15
2	4.3	4.3	1 '	Alfalfa maintenance (Alfalfa maintenance)								
1	10.8	9.5	Waynesboro L (WaC2 5- 12%)	Fescue hay maint (Fescue hay maint)		 			1			
Total	15.1	13.8			2.7							

6.9. Manure Inventory Annual Summary

Manure Source	Plan Period	On Hand at Start of Period	Total Generated	Total Imported	Total Trans- ferred In	Total Applied	Total Exported	Total Trans- ferred Out	On Hand at End of Period	Units
House 1	Apr '10 - Mar '11	50	160	0	0	0	0	90	120	Ton
House 2	Apr '10 - Mar '11	50	160	0	0	0	0	90	120	Ton
House 3	Apr '10 - Mar '11	50	160	0	0	0	0	90	120	Ton
House 4	Apr '10 - Mar '11	50	160	0	0	0	0	90	120	Ton
Dry Stack 1	Apr '10 - Mar '11	0	0	0	180	0	0	0	180	Ton
Dry Stack 2	Apr '10 - Mar '11	0	0	0	180	0	180	0	0	Ton
All Sources	Apr '10 - Mar '11	200	640	0	360	0	180	360	660	Ton
House 1	Apr '11 - Mar '12	120	160	0	0	0	0	210	70	Ton
House 2	Apr '11 - Mar '12	120	160	0	0	0	0	210	70	Ton
House 3	Apr '11 - Mar '12	120	160	0	0	0	0	223	57	Ton
House 4	Apr '11 - Mar '12	120	160	0	0	0	0	222	58	Ton
Dry Stack 1	Apr '11 - Mar '12	180	0	0	420	19	410	0	171	Ton
Dry Stack 2	Apr '11 - Mar '12	0	0	0	445	0	445	0	0	Ton
All Sources	Apr '11 - Mar '12	660	640	0	865	19	855	865	426	Ton
House 1	Apr '12 - Mar '13	70	160	0	0	0	0	90	140	Ton
House 2	Apr '12 - Mar '13	70	160	0	0	0	0	90	140	Ton
House 3	Apr '12 - Mar '13	57	160	0	0	0		90	127	Ton
House 4	Apr '12 - Mar '13	58	160	0	0	0	0	90	128	Ton
Dry Stack 1	Apr '12 - Mar '13	171	0	0	180	19	251	0	81	Ton
Dry Stack 2	Apr '12 - Mar '13	0	0	0	180	0	180	0	0	Ton
All Sources	Apr '12 - Mar '13	426	640	0	360	19	431	360	616	Ton
House 1	Apr '13 - Mar '14	140	160	0	0	0	0	234	66	Ton
House 2	Apr '13 - Mar '14	140	160	0	0	0	0	234	66	Ton
House 3	Apr '13 - Mar '14	127	160	0	0	0	0	232		Ton
House 4	Apr '13 - Mar '14	128	160	0	0	0	0	234		Ton
Dry Stack 1	Apr '13 - Mar '14	81	0	0	468	19	359	0		Ton
Dry Stack 2	Apr '13 - Mar '14	0	0	0	466	0	466	0		Ton
All Sources	Apr '13 - Mar '14	616	640	0	934	19	825	934		Ton
House 1	Apr '14 - Mar '15	66	160	0	0	0	0	90	136	Ton
House 2	Apr '14 - Mar '15	66	160	0	0	0	0	90		Ton
House 3	Apr '14 - Mar '15	55	160	0	0	0	0	90		Ton
House 4	Apr '14 - Mar '15	54	160	0	0	0	0	90		Ton
Dry Stack 1	Apr '14 - Mar '15	171	0	0	180	19		0		Ton
Dry Stack 2	Apr '14 - Mar '15	0	0	0	180	0	180	0	0	Ton

Manure Source	Plan Period	On Hand	Total	Total	Total	Total	Total	Total	On Hand	Units
		at Start of	Generated	Imported	Trans-	Applied	Exported	Trans-	at End of	
		Period			ferred In			ferred Out	Period	
All Sources	Apr '14 - Mar '15	412	640	0	360	19	431	360	602	Ton

6.10. Fertilizer Material Annual Summary

Product Analysis	Plan Period	Product	Product	Product	Total Units
	그리면의 그렇게 많은 얼마네	Needed	Needed	Needed	Product
		Apr - Aug	Sep - Dec	Jan - Mar	Needed

6.11. Plan Nutrient Balance (Manure-spreadable Area)

	N (Lbs)	P ₂ O ₅ (Lbs)	K₂O (Lbs)
Total Manure Nutrients on Hand at Start of Plan ¹	14,440	9,520	10,300
Total Manure Nutrients Collected ²	231,040	152,320	164,800
Total Manure Nutrients Imported ³	0	0	. 0
Total Manure Nutrients Exported ⁴	196,528	129,567	140,183
Total Manure Nutrients on Hand at End of Plan ⁵	43,493	28,674	31,024
Total Manure Nutrients Applied ⁶	5,487	3,595	3,898
Available Manure Nutrients Applied ⁷	3,201	3,595	3,898
Commercial Fertilizer Nutrients Applied ⁸	0	0	0
Available Nutrients Applied ⁹	3,201	3,595	3,898
Nutrient Utilization Potential ¹⁰	11,008	4,178	13,860
Nutrient Balance of Spreadable Acres ^{11*}	-7,807	-583	-9,962
Average Nutrient Balance per Spreadable Acre per Year 12*	-113	-8	-144

- 1. Values indicate total manure nutrients present in storage(s) at the beginning of the plan.
- 2. Values indicate total manure nutrients collected on the farm.
- 3. Values indicate total manure nutrients imported onto the farm.
- 4. Values indicate total manure nutrients exported from the farm to an external operation.
- 5. Values indicate total manure nutrients present in storage(s) at the end of plan.
- 6. Values indicate total nutrients present in land-applied manure. Losses due to rate, timing and method of application are not included in these values.
- 7. Values indicate available manure nutrients applied on the farm based on rate, time and method of application. These values are based on the total manure nutrients applied (row 6) after accounting for state-specific nutrient losses due to rate, time and method of application.
- 8. Values indicate nutrients applied as commercial fertilizers and nitrates contained in irrigation water.
- 9. Values are the sum of available manure nutrients applied (row 7) and commercial fertilizer nutrients applied (row 8).

6.7. Planned Nutrient Applications (Manure-spreadable Area)

Field	App. Month	Target Crop	Nutrient Source	Application Method	Rate Basis	Rate/Acre	Loads, Speed or Time	Total Amount Applied		Avail N (Lbs/A)	P ₂ O ₅	Avail K₂O (Lbs/A)
2	Apr 2011	Alfalfa maintenance	Dry Stack 1	Truck, Not incorporated	1-yr P	2 Ton	3.6 Lds	25.2 Ton	12.6	72	95	103
2	Apr 2012	Alfalfa maintenance	Dry Stack 1	Truck, Not incorporated	1-yr P	1.6 Ton	1 Lds	7 Ton	4.4	58	76	82
2	Apr 2013	Alfalfa maintenance	Dry Stack 1	Truck, Not incorporated	1-yr P	1.6 Ton	1 Lds	7 Ton	4.4	58	76	82
2	Apr 2014	Alfalfa maintenance	Dry Stack 1	Truck, Not incorporated	1-yr P	1.6 Ton	1 Lds	7 Ton	4.4	58	76	82
1	Apr 2011	Fescue hay maint	Dry Stack 1	Truck, Not incorporated	1-yr P	1.4 Ton	2.1 Lds	14.7 Ton	10.5	51	67	72
1	Apr 2012	Fescue hay maint	Dry Stack 1	Truck, Not incorporated	1-yr P	1.2 Ton	1.7 Lds	11.9 Ton	9.9	43	57	62
1	Apr 2013	Fescue hay maint	Dry Stack 1	Truck, Not incorporated	1-yr P	1.2 Ton	1.7 Lds	11.9 Ton	9.9	43	57	62
1	Apr 2014	Fescue hay maint	Dry Stack 1	Truck, Not incorporated	1-yr P	1.2 Ton	1.7 Lds	11.9 Ton	9.9	43	57	62

6.8. Field Nutrient Balance (Manure-spreadable Area)

Year	Field	Size	Crop	Yield Goal	Fer	tilizer Re	cs ¹	Nutrie	ents App	lied ²	Balan	ce After I	Recs ³	Balanc Remo	e After oval ⁴
		Acres		/Acre	N Lb/A	P₂O₅ Lb/A	K₂O Lb/A	N Lb/A	P₂O₅ Lb/A	K₂O Lb/A	N Lb/A	P ₂ O ₅ Lb/A	K₂O Lb/A	P ₂ O ₅ Lb/A	K₂O Lb/A
2010	2	4.3	Alfalfa maintenance	5	0	0	0	0	0	0	0	0	0	-75	-300
2011	2	4.3	Alfalfa maintenance	5	0	0	0	59	78	84	0 ^a	78	84	3	-216
2012	2	4.3	Alfalfa maintenance	5	0	0	0	59	78	84	_0ª	156	168	6	-216
2013	2	4.3	Alfalfa maintenance	5	0	0	0	59	78	84	0 ^a	234	252	9	-216
2014	2	4.3	Alfalfa maintenance	5	0	0	0	59	78	84	0°	312	336	12	-216
Total	2				0	0	0	236	312	336					
2010	1	9.5	Fescue hay maint	3	105	0	0	0	0	0	-105	0	0	-54	-156
2011	1	9.5	Fescue hay maint	3	105	0	0	45	59	65	-60	59	65	5	-91
2012	1	9.5	Fescue hay maint	3	105	0	0	45	59	65	₋₅₂ †	118	130	10	-91
2013	1	9.5	Fescue hay maint	3	105	0	0	45	59	65	-49†	177	195	15	-91

Year	Field	Size	Crop	Yield Goal	Ferl	ilizer Red	₃₅ 1	Nutrie	ents App	led ²	Baland	e After I	Recs ³	Balanc Remo	e After oval ⁴
		Acres		/Acre	N Lb/A	P₂O₅ Lb/A	K₂O Lb/A	N Lb/A	P₂O₅ Lb/A	K₂O Lb/A	N Lb/A	P ₂ O ₅	K₂O Lb/A	P ₂ O ₅ Lb/A	K₂O Lb/A
2014	1	9.5	Fescue hay maint	3	105	0	0	45	59	65	₋₄₉ †	236	260	20	-91
Total	1				525	0	0	180	236	260					

Non-manure-spreadable Area

Year	Field	Size	Crop	Yield Goal	Fer	ilizer Re	ss ¹	Nutrie	ents App	lied ²	Balan	ce After i	Recs ³	Balanc Remo	e After oval ⁴
		Acres		/Acre	N Lb/A	P₂O₅ Lb/A	K₂O Lb/A	N Lb/A	P₂O₅ Lb/A	K₂O Lb/A	N Lb/A	P₂O₅ Lb/A	K ₂ O Lb/A	P₂O₅ Lb/A	K₂O Lb/A
2010	1	1.3	Fescue hay maint	3	105	0	0	0	0	0	-105	0	0	-54	-156
2011	1	1.3	Fescue hay maint	3	105	0	0	0	0	0	-105	0	0	-54	-156
2012	1	1.3	Fescue hay maint	3	105	0	0	0	0	0	-105	0	0	-54	-156
2013	1	1.3	Fescue hay maint	3	105	0	0	0	0	0	-105	0	0	-54	-156
2014	1	1.3	Fescue hay maint	3	105	0	0	0	0	0	-105	0	0	-54	-156
Total	1				525	0	0	0	0	0					

¹ Fertilizer Recs are the crop fertilizer recommendations. The N rec accounts for any N credit from previous legume crop.

² Nutrients Applied are the nutrients expected to be available to the crop from that year's manure applications plus nutrients from that year's commercial fertilizer applications and nitrates from irrigation water. With a double-crop year, the total nutrients applied for both crops and the year's balances are listed on the second crop's line.

 $^{^3}$ For N, Nutrients Applied minus Fertilizer Recs for indicated crop year. Also includes amount of residual N expected to become available that year from prior years' manure applications. For P_2O_5 and K_2O , Nutrients Applied minus Fertilizer Recs *through* the indicated crop year, with positive balances carried forward to subsequent years. Negative values indicate a potential need to apply additional nutrients.

⁴ Nutrients Applied minus amount removed by harvested portion of crop through the indicated year. Positive balances are carried forward to subsequent years.

 $[\]ensuremath{^{\text{m}}}$ Indicates a custom fertilizer recommendation in the Fertilizer Recs column.

^a Indicates in the Balance After Recs N column that the legume crop is assumed to utilize some or all of the supplied N.

[†] Indicates in the Balance After Recs N column that the value includes residual N expected to become available that year from prior years' manure applications.

- 10. Values indicate nutrient utilization potential of crops grown. For N the value generally is based on crop N recommendation for non-legume crops and crop N uptake or other state-imposed limit for N application rates for legumes. P₂O₅ and K₂O values generally are based on fertilizer recommendations or crop removal (whichever is greatest).
- 11. Values indicate available nutrients applied (row 9) minus crop nutrient utilization potential (row 10). Negative values indicate additional nutrient utilization potential and positive values indicate over-application.
- 12. Values indicate average per acre nutrient balance. Values are calculated by dividing nutrient balance of spreadable acres (row 11) by the number of spreadable acres in plan and by the length of the plan in years. Negative values indicate additional average per acre nutrient utilization potential and positive values indicate average per acre over-application.
- * Non-trivial, positive values for N indicate that the plan was not properly developed. Negative values for N indicate additional nutrient utilization potential which may or may not be intentional. For example, plans that include legume crops often will not utilize the full N utilization potential for legume crops if manure can be applied to non-legume crops that require N for optimum yield. Positive values for P_2O_5 and/or K_2O do not necessarily indicate that the plan was not developed properly. For example, producers may be allowed to apply N-based application rates of manure to fields with low soil test P values or fields with a low potential P-loss risk based on the risk assessment tool used by the state. Negative values for P_2O_5 and K_2O indicate that planned applications to some fields are less than crop removal rates.

Plan Nutrient Balance (Non-manure-spreadable Area)

	N (Lbs)	P₂O₅ (Lbs)	K₂O (Lbs)
Commercial Fertilizer Nutrients Applied ¹	0	0	0
Nutrient Utilization Potential ²	656	0	0
Nutrient Balance of Non-spreadable Acres ^{3*}	-656	0	0
Average Nutrient Balance per Non-spreadable Acre per Year ^{4*}	-105	0	0

- 1. Values indicate nutrients applied as commercial fertilizers and nitrates contained in irrigation water.
- 2. Values indicate nutrient utilization potential of crops grown based on crop fertilizer recommendations.
- 3. Values indicate commercial fertilizer nutrients applied (row 1) minus crop nutrient utilization potential (row 2). Negative values indicate additional nutrient utilization potential and positive values indicate over-application.
- 4. Values indicate average per acre nutrient balance. Values are calculated by dividing nutrient balance of non-spreadable acres (row 3) by number of non-spreadable acres in plan. Negative values indicate additional average per acre nutrient utilization potential and positive values indicate average per acre over-application.
- * Non-trivial, positive values for N indicate that the plan was not properly developed. Negative values for N indicate additional nutrient utilization potential which may or may not be intentional. Positive values for P₂O₅ and/or K₂O do not necessarily indicate that the plan was not developed properly. For example, multiple year applications may have been planned during the final plan year(s) and these nutrients will not be utilized by crops in the current plan. Negative values for P₂O₅ and K₂O indicate that applications to some fields may have been delayed to allow the producer to apply the nutrients in accordance with their fertilization schedule.

Section 7. Record Keeping

This section includes a list of key records that the operator should keep in order to document and verify implementation of the procedures in this CNMP. Records should be kept for a minimum of 5 years, or for the length of the contract, rotation or permit, whichever is longer, for each field where manure is applied.

These general records include but are not limited to:

- ♦ Soil test results
- ♦ Weather and soil conditions 24 hours prior to, during, and 24 hours after application of manure, chemicals and pesticides
- ♦ Documentation (can be verbal) of arrangements for land injection on land not owned by the grower
- ◆ Type, quantities, and sources of all nutrients generated and collected
- ◆ Type, quantities, and sources of all nutrients applied to each field
- ◆ Dates of manure applications
- ◆ Analysis of manure prior to application and test method used
- ♦ Analysis of the manure transferred, where applicable
- ♦ Dates manure was transferred, where applicable and to whom
- ♦ Amount of manure transferred, where applicable
- ♦ Inspection reports
- Preside Dress Soil Nitrate Testing (PSNT), where applicable
- ♦ Operation and Maintenance records of conservation practices and equipment
- Restricted pesticides used to meet label requirements
- Equipment Calibration records
- ◆ Crops planted, tillage methods, and dates planted
- ♦ Crop harvest dates and yields
- ♦ Conservation practices and management activities and implemented
- ♦ Adjustments to the nutrient management plan based on records and changes in farming operations as appropriate.
- Changes to the CNMP
- ♦ Weekly check of volume left in pit
- ♦ Annual visual inspection of retention structure (the pits), animal holding areas, if applicable and land application areas.
- Records of mortalities and how managed

Section 8. Actual Test Results

CLINTON Co Extension Office 2601 N Highway 127 ALBANY 42602 606-387-5404

SOIL TEST REPORT COOPERATIVE EXTENSION SERVICE UNIVERSITY OF KENTUCKY COLLEGE OF AGRICULTURE

Co. Sample # = 1332

> Michael Brown Rd. > 305 HC Brown Rd. > Albany 124 95402

County Extension Agent

Form Type: County Code:

Date:

A 53 LAB NO.: 36877

Owner Sample ID: 0001

Drainage: Well Drained

Farmer ID: -1 Acres: 0020

CROP

11/6/2009

MANAGEMENT

ACIOS:

<u>USE</u> No Info Given

Primary: Alfalfa/Cool Season Previous: No Info Given New Seeding No Info Given

High

No Info Given No Info Given

TEST RESULTS

P: 189 Very High

Ca: 3018

Calculated CEC (meq/100g):

13

K: 609 Very High pH: 6.4

Mg: 255 Zn: 5

%BS:

61 %Ca: 49 5 %H: 39

%Ma:

Buffer pH: 6.9

RECOMMENDATIONS

Alfalfa/Cool Season

N: 0 to 30 lb/ac

LIME: 0.67 tons/ac

P2O5: None K2O: None

ZINC: None MG: None

- Mehlich III used for P, K, Ca, Mg, and Zn (lbs/acre). Crop response is highly probable with Very Low or Low soil levels, slight with Medium, and not likely with High or Very High. N, P2O5, K2O, Mg, and Zn recommendations are based on ibs of the nutrient. Fertilizer needed will depend on nutrient content in the fertilizer. Soil pH and Sikora buffer pH are used for determining lime needs based on 100% effective lime. Lime quality in KY is defined by relative neutralizing value (RNV) and needs to be used to determine Lime rate (=Lime rec / RNV x 100). RNVs for ag lime are on the internet (publications at soils.rs.uky.edu).
- Apply appropriate, good quality legume inoculent. Avoid delays in planting inoculated seed. The amount of N applied should be based on the estimated residual N in the field. With high residual N no nitrogen is recommended. Apply no more than 30 lb/acre of N at seeding for legumes and grass mixtures and no more that 50 lb/acre of N for straight grass with low residual N in the field.
- For alfalfa production, apply 1.5 2.0 lb of elemental boron (B) per acre every two years. If fertilizer B or B-containing materials such as solid waste from coal fired power plants has been routinely applied in successive years to established stands of alfalfa, a soil test for B should be run. If hot water extractable levels of B exceed 2 lb/acre, B should not be applied.
- For long-term production of alfalfa and alfalfa-grass mixture, the pH should be about 6.5 7.0.
- For additional information, ask your local Extension Office for the publications, AGR-64 "Establishing Forage Crops"; AGR-76 "Alfalfa, The Queen of Forage Crops"; and AGR-90 "Inoculation of Forage Legumes".
- · UK Forage publications can be found at the website http://www.uky.edu/Ag/Forage/ForagePublications.htm and variety trial information can be found at http://www.uky.edu/Ag/Forage/ForageVarietyTrials2.htm

50 LB. Per Acop 34-0-0 Announce Mitrate 2-ton Line Per Acre as Loon as Possible No Phosphats yourd

UNIVERSITY OF ARKANSAS DIVISION OF AGRICULTURE

Cooperative Extension Service

Agricultural Diagnostic Laboratory, University of Arkansas Information Sheet for Manure Analysis for Fartilizer Value Phone: (479) 575-3908 Fax (479) 575-3896 AGRI-429 6-14-2007

	I flotial ())	lah# M90378
Name Brown Family Farm	Sample#	white the state of
(1) M. V. I Tabbie BOOV	1 . ∧⊊6ui	ny Pickett Tenniss
Address 301 Rich Light Pall	Mall TN 385 Bale	Received 3-5-09
Option 1: Routine Tests:	□ NO ₃ -N\$5.00	□ NH ₄ -N\$6.00
Total N, P, K, Ca, pH, % Moisture; and electrical	Sulfur\$1.50	Magnesium\$1.50
Conductivity (EC),\$20.00	Copper\$1.50	Мапдалезе\$1,50
Option 2: Liquid Manure Test (Reg 5): Total N. P. K. Ca, #pH, %	☐ Iron\$1.50	☐ Zinc\$1.50
Solids; EC;NH4-N \$24.00	□ NO ₃ -N, NH ₄ -N Pack	age,\$10.00
(Add NO ₃ -N test with option 2\$28,00)	☐ Fe, Zn, Mn, Cu Pacl	kage\$6.00
Add Water Soluble P \$8.00	Others requested	
OUT OF STATE SAMPLES ADD 20% TO F	EES	21100
Analysis Fees 2400 Postage		TOTAL FEE
Enclosed Sample Malled Separa	itely O	# 1067
	Ithelmer Drive Univ	se make checks payable to: eraity of Arkansas ne: (479) 575-3908
Beef Lbs. No Dairy Lbs. Ri Swine Lbs. WW Broilers 50 day /1 Lb5Age/lbs. Ri	ing Type one ce hulls ood shavings/Sawdust ce hulls/Wood shavings her:	Type of Manure Lagoon sludge Lagoon liquid Dairy dry stack Swine composter Holding pond/Settling basin sludge Holding pond/Settling basin liquid Dead bird composter Poultry deep stack Poultry full house cleanout Poultry cake Other
Date Sampled 3-2-09 Age o	f Manure 60 da	x 5
Additional Information 5mall 5amp	les taken rand	lomly throughout shed
Bampling instructions: Collect a composite eample of at les pit). Obtain subsamples from at less tan (10) different place ample to a depth of three inches or to the bottom of the litt	a and/or depthe to make up the co	mposite semple, in the case of poultry litter,
		= '
Mix the subsamples and place in the appropriate container t lab in unbreakable, plastic bottles <u>securely</u> closed. Conten-	BTE Should only be filled three-four	the full to allow for gas buildup. Moist or dry
simples should be placed in a plastic bag and forwarded to		snipping carton.
ices listed are current as of July 1, 2000. Prices subject to	change without notice.	

University of Arkanses, United States Department of Agriculture and County Governments cooperating.

The Arkanses Cooperative Extension Service offers its programs to all eligible persons regardless of race, color, national origin, religion, gender, spe, disability, marital or veteran status, or any other legally protected status, and is an Equal Opportunity Employer.

County agent keeps one copy. Send three (3) copies to lab. One copy will be returned with sample

results for farmer's records.

AGRICULTURAL DIAGNOSTIC LABORATORY UNIVERSITY OF ARKANSAS - FAYETTEVILLE

***MANURE FOR FERTILIZER ANALYSIS (report for AGRI-429)

Name:	BROWN FAMIL	Y FARMS	Received in lab:	3/05/2009	
Address:	301 RICH LANE		Malled:	3/13/2009	
City:	PALL MALL		State,Zip:	AR 38577	
County:	PICKETT (TN)		CK#:	1067	
Lab. No.	M90378				
Sample No.	1	NOTE: Too much sample sen	t. One quart of material	is plenty for an	alysis.
Animal type	broilers				
-age/lbs	50 days/7 lbs				
Bedding type	shavings/sawdu	ıst			
Manure type	deep stack				
Sample date	3/02/2009				
Age of manure	60 days		_		
ρH	7.9				
EC(umhos/cm)	10650				
% H20	42.27				
		on dry basis			
Total %N	5.02				
Total %P	1.47	Charles on the Charles of the Charle		-	
Total %K	2.96				
Total %Ca	2.60		***************************************		***************************************
Total %Carbon	35.98				
NO3-N, mg/kg					
NH4-N, mg/kg					
· · · · · · · · · · · · · · · · · · ·		on "as-is" basis	-		******
Total %N	2.90	Marchaella and Carlos			
Total %P	0.85				
Total %K	1.71				***************************************
Total %Ca	1.50				
Total %Carbon	20.77				******
NO3-N, mg/kg					
NH4-N, mg/kg			····		
· · · · · · · · · · · · · · · · · · ·		lbs/ton on "as-is" b	nasie		
N	58.0				
P2O5	38.9				
K2O	41.4				
Ca	30.0		-		
Total Carbon	415.4	**************************************			************
NO3-N					
NH4-N					
*** **			-		

^{***}all analyses performed on "as-is" basis/ "dry" basis is calculated from moisture content

^{*}lbs/ton P2O5 = %Total P on "as-is" basis multiplied by 20*2.29

[&]quot;lbs/ton K2O = %Total K on "as-is" basis multiplied by 20*1.2

AGRICULTURAL DIAGNOSTIC LABORATORY UNIVERSITY OF ARKANSAS - FAYETTEVILLE

CLINTON CO SHERIFF

Name:	BROWN FAMILY FARMS		Received in lab:		
Address:	301 RICH LANE		Mailed:	4/18/2012	
City:	PALL MALL		State,Zip:	TN 38577	
County:	PICKETT (TN)		CK#:	2513	
Lab. No,	M00674		·		
Sample No.	1				
Animal type	broilers				
-age/lbs	54 days/ 7.5 lbs				
Bedding type	shavings/sawdust		-		
Manure type	deep stack				
Sample date	4/01/2012		-		
Age of manure	120 days	-			
pН	5.9				2
EC(µmhos/cm)	15060				
% H20	40.07				
•	-on c	iry basis-		h	
Total %N	6.02				
Total %P	1.74				
Total %K	3.55				
Total %Ca	3.35				
Total %Carbon	41,08				
NO3-N, mg/kg					
NH4-N, mg/kg					
	-on a	s-is basis-			
Total %N	3.61				
Total %P	1.04				
Total %K	2.13				
Total %Ca	2.01				
Total %Carbon	24.62	, , , , , , , , , , , , , , , , , , , 			
NO3-N, mg/kg					
NH4-N, mg/kg					
	-lbs/to	n on as-is basis-		7	
N	72.2	<u> </u>		***	
P2O5	47,6		,		
K2O	51.5	,			
Ca	40.2				
Total Carbon	492.4				
NO3-N					
NH4-N					

^{***}all analyses performed on "as-is" basis/ "dry" basis is calculated from moisture content

^{*}lbs/ton P2O5 = %Total P on "as-Is" basis multiplied by 20*2.29

^{*}lbs/ton K2O = %Total K on "as-is" basis multiplied by 20*1.2

Section 9. Closure Plan

Michael Brown will remove all waste from the stack pad upon closure of this facility. Manure will be applied based on the current nutrient management plan upon that future date.

Outline for Closure Plan

Purpose

Provide a brief description to the owner(s)/operator(s), of where the plan is to be submitted, and the standards/criteria by which the plan will be prepared to meet, if, and when, the site is closed.

Location

Provide site map, direction to the site, and an indication of the watershed where the runoff flows.

Description of the Operation

Describe the general soils at the site(s), the acres available to receive manure, indicate soil test results, RUSLE2, LI, setback/buffer requirements, etc.

Determine the total volume of manure to be removed, and obtain a current manure test results.

Closure Description

Describe in detail how to close the facility all manure that will be land applied as instructed that a revised Nutrient Management Plan be prepared.

Assessment and Documentation of Site (land where manure) will be applied

- 1. Obtain a current soil test on each field receiving manure.
- 2. Run the Phosphorus Index (PI) on each field receiving manure.
- 3. Identify and delineate sensitive areas.
- 4. Determine the extent to which cultural resources will be impacted.
- 5. Determine the existing level of conservation treatment on each field where manure will be applied.
- 6. Determine if additional conservation treatment is needed to meet criteria on each field where manure will be applied.
- 7. Run RUSLE2 on each field receiving letter.
- 8. Provide Leaching Index (LI) results (if applicable for each field receiving letter.

Allocations

Allocate manure according to NRCS criteria outlined in the NRCS Waste Utilization Standard, Code 633 and manage nutrients according to NRCS Nutrient Management Standard, Code 590, based upon updated manure, letter and soil tests, crop(s) where materials will be applied.

In the event that Michael Browns broiler production at this location ceases, the following will be done within 360 days:

- Any litter currently in storage at the time of closure will be removed and spread on the farm or spread elsewhere according to my Nutrient Management Plan.
- All litter in houses will be removed and spread on the farm or spread elsewhere according to my Nutrient Management Plan.
- All land application of litter will be done at application rates calculated in the Nutrient Management Plan.
- The most current litter analysis will be provided to anyone removing litter from the farm.
- Any dead birds in the houses at the time of closure will be composted.

Section 10. References

10.1. Publications

Crop Fertilizer Recommendations

"Lime and Fertilizer Recommendations for the Various Crops of Tennessee," BEES Info #100, Aug 2008 http://soilplantandpest.utk.edu/publications/soilfertilizerpubs.htm

Manure Application Setback Features/Distances

Nutrient Management Standard 590 http://efotg.nrcs.usda.gov/references/public/TN/Nutrient_Management_(590)_Standard.doc

TN DEQ Rule 1200-4-5-.14(17)(d) http://www.state.tn.us/sos/rules/1200/1200-04/1200-04-05.pdf

Manure Nutrient Availability

"Manure Application Management," Tables 3 and 4, Tennessee Extension, PB1510, 2/94 http://wastemgmt.ag.utk.edu/Pubs/PB1510.pdf

Phosphorus Assessment

"Tennessee Phosphorus Index," Tennessee NRCS, Nov. 2001

Practice Standards

Tennessee NRCS Nutrient Management Standard (590), Jan. 2003 http://efotg.nrcs.usda.gov/references/public/TN/Nutrient_Management_(590)_Standard.doc

10.2. Software and Data Sources

MMP Version	MMP 0.3.1.0
MMP Plan File	TN_Brown2012.mmp 6/4/2012 8:25:52 AM
MMP Initialization File for Tennessee	11/8/2011
MMP Soils File for Tennessee	8/29/2011
Phosphorus Assessment Tool	2009.02.20
NRCS Conservation Plan(s)	n/a
RUSLE2 Library	Version: 1.32.3.0 Build: Dec 17 2007 Science: 20061020
RUSLE2 Database	RUSLE2118_mosesdb.gdb

10.3. Operation and Maintenance

General

Operation and maintenance of structural, non-structural, and land treatment measures requires effort and expenditures throughout the life of the practice(s) to maintain safe conditions and assure proper functioning. Operation includes the administration, management, and performance of non-maintenance actions needed to keep a completed practice safe and functioning as planned. Maintenance includes work to prevent deterioration of practices, repairing damage, or replacement of the practice(s) if one or more components fail. Listed below is the operation and maintenance plan for the structural, non-structural, and land treatment measures for this operation.

Concrete in the buildings should be checked for signs of cracking. If cracks are discovered they must be repaired immediately. Hairline cracks are expected and should pose no problem.

Waste Storage Facility -Roofed Storage Facilities

Trusses/roof supports shall be examined during/after snowfall and high wind events. Excessive snow loads may require removal. Damage from high winds may cause structural damage to the truss/roof supports. Roof materials shall be replaced as wear/leakage occurs. Metal roofing may require periodic painting. Gutters and Downspouts shall be maintained.

Manure Spreader

Collecting a sample from the manure spreader is one of the preferred methods of collecting a solid manure sample because it represents what is being applied to the field. In addition, by the time manures have been scraped, collected, and loaded into a manure spreader, reasonable mixing has been performed. However, you should still collect at least 5 sub-samples following the collection procedures for the solids separator.

Nutrient Management

When applying waste or commercial fertilizer, calibrate application equipment to ensure that applied rates at recommended rates. It is important to avoid unnecessary exposure to chemical fertilizers and organic wastes. Protective clothing, respirator, gloves and footwear shall be worn when appropriate. When cleaning equipment after nutrient application, residual fertilizers or wastes shall be removed and saved in an appropriate manner.

- Keep records to document implementation activities. (Refer to PAD for guidance for the kind of records that should be kept).
- Calibrate manure application equipment according to procedures outlined in this section.
- Dispose/recycle nutrient containers according to state and local guidelines or regulations.
- Apply nutrients according to the procedures outlined in Section 6.
- Delay application of manure if precipitation capable of producing runoff is anticipated within 24 hours of the application event.

- Monitor soil test phosphorus levels and adjust nutrient application rates accordingly.
- Do not apply manure and wastewater on saturated, frozen and/or frequently flooded soils.
- Adhere to no-application setbacks as outlined on the conservation plan maps in Section 4.

Pesticide Management

The owner/operator is responsible for the proper application and storage of pesticides including calibration and maintenance of all equipment used in application of pesticides. No pesticides are stored on-site. Chemical fertilizers are purchased on an as needed basis. In addition, moveable mixing station is used and long time use of a specific mixing site is avoided therefore minimizing ground contamination. The following should be addressed, according to pesticide labels, in order to minimize negative impacts to the environment:

- Be trained and licensed to apply restricted pesticides.
- Dispose of leftover materials and containers according to label requirements.
- Read and follow all label directions and Material Safety Data Sheets that come with the pesticides.
- Avoid mixing pesticides and loading or rinsing sprayers next to wells, streams, sinkholes, drainage ditches, etc. Install anti-siphon devices on all hoses used to fill spray tanks.
- Avoid exposure to pesticides. Wear appropriate clothing, gloves, respirator, and footwear as specified on the product label. Wash affected area as soon as possible after possible exposure and prior to dinning or smoking.
- Check product label for reentry time. Follow restricted entry intervals.
- Triple –rinse empty containers is considered as a part of an integrated pest management system. Provide areas for emergency washing for those who might accidentally come in contact with chemicals.
- Use field scouting to determine when treatment threshold has been reached. Treatment thresholds for specific pests and crops are often available from the local Cooperative Extension Service office.
- Alternate pesticides of dissimilar mode of action or chemistry to reduce-target species resistance.
- Select methods of application that will result in the least potential for runoff and leaching.

Waste Utilization

Follow Nutrient Management Plan included in this document for the proper manure application rates, timing, and methods of application to provide nutrients to support crop production and to minimize the transport of nutrients to ground and surface water.

Commercial Fertilizer Application Equipment Calibration

The nitrogen applicator and the commercial broadcast spreaders will be set per the manufacturer's recommendations, then filled with a known amount and checked over a known acreage. Adjustments will be made to achieve the planned rates.

Animal Mortality Management

Inspect the facility to note any maintenance needs or indicators of operation problems.

Composting

The composted material will be utilized per the enclosed "Nutrient Management Plan.

Manure Spreader Calibration

There are several methods that can be used to calibrate the application rate of a manure spreader. It is desirable to repeat the calibration procedure 2 to 3 times and average the results to ensure a more accurate calibration. Calibration should take place annually or when manure is being applied from different sources or consistency.

Before calibrating a manure spreader, the spreader settings should be adjusted so that the spread is uniform. Most spreaders tend to deposit more manure near the spreader than at the edge of the spread pattern. Overlapping can make the overall application more uniform. Calibrating of application rates when overlapping, requires measuring the width of two spreads and dividing by two to get the effective spread width.



To calibrate the manure spreader use either of the following procedures.

Spreader Calibration - Method 1

Equipment: plastic sheet 6 x 6ft or 10 x 10ft, scale, bucket

- 1. Weigh sheet with bucket on the scale
- 2. Lay sheet in field in the path of manure spreader positioning it so the tractor will be at spreading speed before it reaches the sheet.
- 3. After spreading weigh sheet and manure in the bucket. Subtract weight of sheet plus bucket
- 4. Tons manure/acre = lb manure x 2 1.8, sheet size, sq ft

Spreader Calibration - Method 2

Equipment: yard stick, rope

- 1. Determine manure spreader capacity
- 2. Tie rope around tractor tire to determine distance traveled in one revolution
- 3. Spread manure load, counting wheel revolutions to determine the distance traveled
- 4. Measure width spreader is covering with manure, multiply by distance traveled

